EV-A200
RMT-419

SERVICE MANUAL

AEP Model
Australian Model
Hong Kong Model

September, 1986

Video 8

SPECIFICATIONS

System

Video recording system	Rotary two heads Helical scanning FM system
Audio recording system	Rotary head, FM system
Video signal	AEP model CCIR system B, G and H PAL colour AS, HK models CCIR standards PAL colour
Usable cassettes	8 mm video format cassettes
Tape speed	SP: approx. 20.051 mm/sec LP: approx. 10.058 mm/sec
Recording/playback time	SP: 90 min. LP: 180 min. (with Sony P5-90 cassette)
Fast forward/rewind time	Approx. 3 min. (with Sony P5-90)

Tuner section

Channel coverage	AEP model VHF E2–S20, UHF 21–69 AS model VHF 0–5 and 5A-11, UHF 28–34 and 39–63 HK model UHF 21–68
Aerial	75-ohm asymmetrical aerial socket
RF output signal	AEP, HK models UHF channels 30 to 39 (variable), 75 ohms, unbalanced AS model VHF channels 0 or 1 (selectable), 75 ohms, unbalanced

Inputs and outputs

Video input	EURO-AV: 21-pin (pin 20) 1 Vp-p, 75 ohms, unbalanced, sync negative
Video output	EURO-AV: 21-pin (pin 19) 1 Vp-p, 75 ohms, unbalanced, sync negative
Audio input	EURO-AV: 21-pin (pin 2 and 6) More than 10 kilohms, –6 dBs (0 dBs = 0.775 Vrms)
Audio output	EURO-AV Output impedance less than 1 kilohm, –6 dBs with 10 kilohms load, unbalanced

Timer

Clock	Crystal clock
Time indication	24-hour cycle
Timer setting	Only for recording 6 events can be set for all 7 days of the week, for any day within 7 days, or for the same day every week
Memory backup	Approx. 3 sec.

— Continued on page 2 —

8 VIDEO CASSETTE RECORDER

SONY®

MICROFILM

VIDEO

General

Power requirements	AEP model 220 V ac, 50 Hz AS model 240 V ac, 50 Hz HK model 200 V ac, 50/60 Hz
Power consumption	23 W
Operating temperature	5°C to 40°C (41°F to 104°F)
Storage temperature	−20°C to 60°C (−4°F to 140°F)
Dimensions	Approx. 355 × 85 × 353 mm (w/h/d) (14 × 3¼ × 14 inches) incl. projecting parts and controls
Weight	Approx. 6 kg (13 lbs 4 oz)

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL TO SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

Accessories supplied

Remote Commander RMT-419 with 2 size AA batteries
75-ohm coaxial cable (1)
Screwdriver (1)
Video Monitor Cable VMC-2104MS(1): AS Model

OPTIONAL CONNECTING CABLES

VMC-2121CE	(21-pin connector to 21-pin connector)
VMC-2106S	(21-pin connector to 6 phono plugs)
VMC-2104MS	(21-pin connector to 4 phono plugs)

The model type of your unit is indicated on the type plate on the rear of the unit. The differences between the models are shown below.

		AEP model	AS model	HK model
1	Operating Voltage	• 220 V ac ±10% 50 Hz	• 240 V ac ±10% 50 Hz	• 200 V ac ±10% 50/60 Hz
2	Video Signal	• CCIR system B, G and H, PAL colour	• CCIR standards PAL colour	• CCIR standards PAL colour
3	Channel Coverage	• VHF channels E2–S20 • UHF channels 21–69	• VHF channels 0–5 and 5a–11 • UHF channels 28–34 and 39–63	• UHF channels 21–68
4	RF Output Signal	• UHF channels 30 to 39 (variable)	• VHF channels 0 or 1 (selectable)	• UHF channels 30 to 39 (variable)
5	Power Consumption	23W	23W	23W

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

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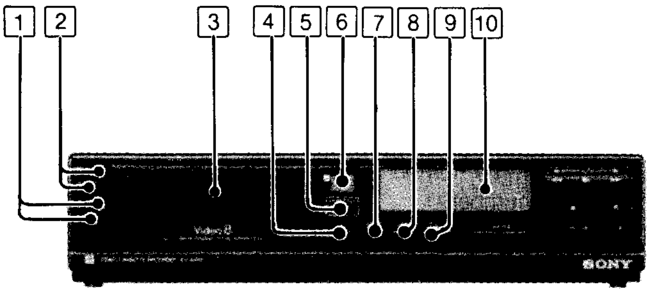
SECTION 1
GENERAL

1-1. LOCATION AND FUNCTION OF CONTROLS

A-1



Front **A-1**

1 **≜ EJECT button and lamp**
Press to open the cassette compartment.

2 **ON/STANDBY switch and lamp**
Press to turn on the unit.
Press again to turn off the unit.

3 **Cassette compartment**

4 **TV/VTR button**
Use this button when the VTR is connected to the TV's SCART or PERI-TV connector. This button selects the picture to be displayed on the TV screen: the picture being received by the VTR tuner or the TV tuner.
To select the VTR mode, press this button so that "VTR" appears in the display window.
To select the TV mode, press this button so that "VTR" disappears.

5 **QUICK TIMER button**
Press to start a recording and set the duration of the recording simultaneously. The duration can be set for up to 5 hours in 30 minute intervals.

6 **Remote sensor**
Detects the remote signal transmitted from the supplied Remote Commander.

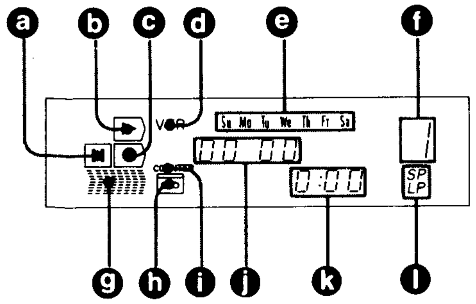
7 **TAPE RETURN button**
Press to access the tape to the approximate "0000" point on the counter.

8 **COUNTER RESET button**
Press to reset the tape counter to "0000".

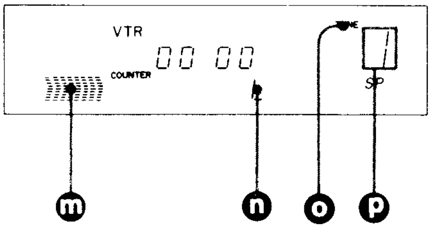
9 **TIMER CHECK button**
Press to check the timer settings.

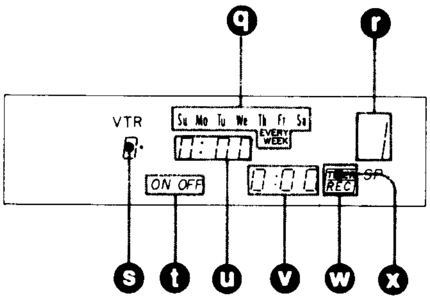
10 **Display window** **A-2**
The following indications are displayed according to the operating mode of the VTR.

A-2



Normal mode
- ⓐ Pause
- ⓑ Playback
- ⓒ Recording
- ⓓ VTR mode
- ⓔ Day of the week
- ⓕ Programme number
- ⓖ Tape running
- ⓗ Cassette inserted
- ⓘ COUNTER: Indicates that the counter is being displayed.
- ⓙ Counter
- ⓚ Current time
- ⓛ SP/LP recording mode


VTR
00 00
COUNTER
TUNE
SP
ⓜ
ⓝ
ⓞ
ⓟ


ⓠ
ⓡ
VTR
Su Mo Tu We Th Fr Sa
EVERY WEEK
ON OFF
TIMER REC
SP
ⓢ
ⓣ
ⓤ
ⓥ
ⓦ
ⓧ

Programming mode

ⓜ Tuning

ⓝ Band

ⓞ TUNE: Indicates that the unit is in the programming mode.

ⓟ Programme number

Timer setting mode

ⓠ Day of the week

ⓡ Programme number

ⓢ Event number

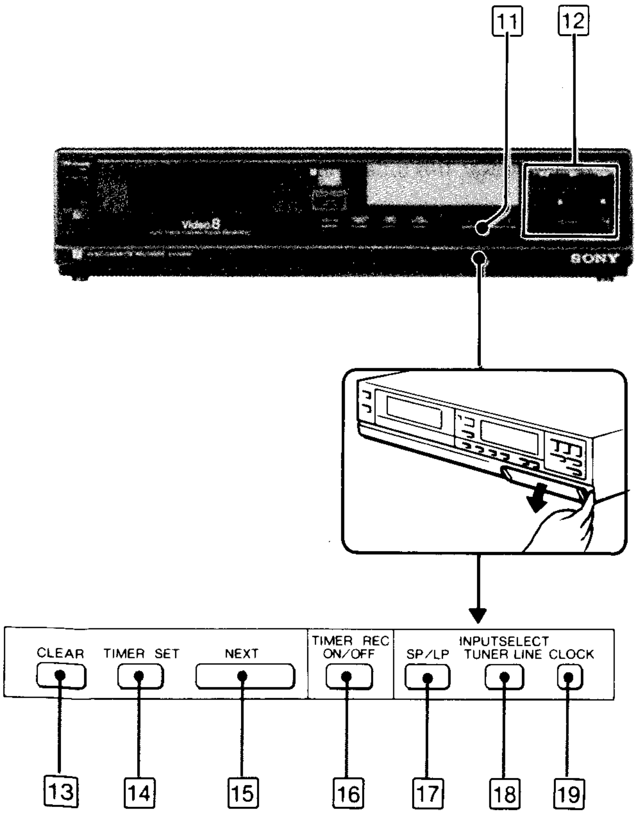
ⓣ ON/OFF: Indicates that the turn on/turn off time is ready to be set.

ⓤ Turn on time

ⓥ Turn off time

ⓦ TIMER REC: Indicates that the unit is in the timer recording standby mode.

ⓧ TIMER: Indicates that the unit is in the timer setting mode.


11
12
Video8
SONY
CLEAR
TIMER SET
NEXT
TIMER REC ON/OFF
INPUTSELECT
SP/LP
TUNER LINE
CLOCK
13
14
15
16
17
18
19

11 **TIMER/PROGRAM +/− buttons**
Press to select the TV programme to be recorded.
Use also to set the timer and clock.

12 **Tape transport buttons and switch**
◀◀ button: Press to rewind the tape.
▶ button: Press to play back the tape.
▶▶ button: Press to advance the tape rapidly.
■ button: Press to stop the tape.
❚❚ button: Press to stop the tape for a moment during recording or playback. Press again to release the pause mode.
REC switch: Slide to the right to start recording.

13 **CLEAR button**
Press to erase the timer setting of a particular event.

14 **TIMER SET button**
Press to start setting the timer.

15 **NEXT button**
Press to memorize the setting of the item which is blinking and advance to the next item.

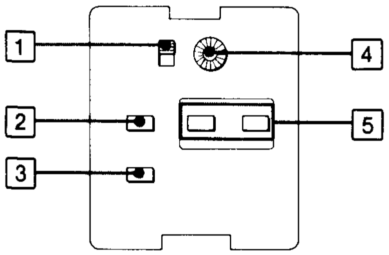
16 **TIMER REC ON/OFF button**
Press to activate the timer.
Press again to deactivate the timer.

17 **SP/LP button**
Press to select the recording speed: SP or LP.

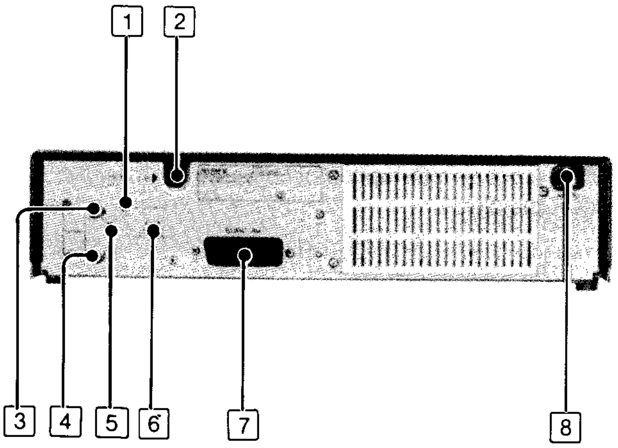
18 **INPUT SELECT switch**
Set to TUNER to record TV programmes.
Set to LINE to record audio and video signals input through the EURO-AV connector.

19 **CLOCK button**
Press to start setting the clock.

A-3



A-4



Top **A-3**

1 AFT (automatic fine tuning) switch
Normally set to ON. The automatic fine tuning circuit fine tunes the stations for the best possible picture. Set to OFF to fine tune a station manually.

2 SEARCH button
Press to start programming stations.

3 CLEAR button
Press to skip a programme number.

4 SHARPNESS control
Normally set to the centre detent position.
Turn this control to adjust the sharpness of the playback picture, if required.

5 TUNING +/− buttons
Press repeatedly to tune in a station, when the SEARCH button is set to ON.
Keep pressed to fine tune a station, when the SEARCH button and the AFT switch are set to OFF.

Rear **A-4**

1 TEST SIGNAL switch (AEP/HK model)
Normally set to OFF.
Set to ON to obtain a test pattern for adjusting the TV.

2 CONTROL S IN jack
Connect to the CONTROL S output jack of a Sony product, such as the RM-E100V video editing controller, for various systematic operations.

3 AERIAL IN socket
Connect the aerial cable to this socket.

4 AERIAL OUT socket
Connect to the aerial input of the TV using the supplied cable.

5 DX/LOCAL switch (AEP/HK model)
Normally set to DX.
If the TV signal is very strong, set to LOCAL.

6 RF CHANNEL screw (AEP/HK model)
If there is interference on the factory-set RF channel and the output signal from this unit is not clearly displayed on the TV screen, adjust the screw with the supplied screwdriver.

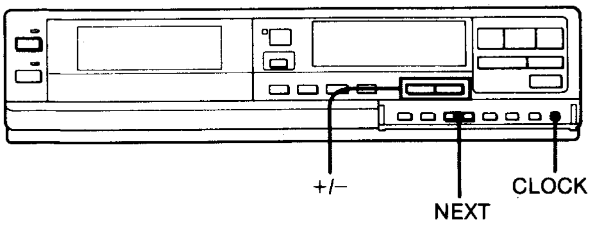
RF unit selector (AS model)
Select the output channel at the AERIAL OUT socket. Set the se selector to VHF 0CH or 1CH, whichever is not active in your area.

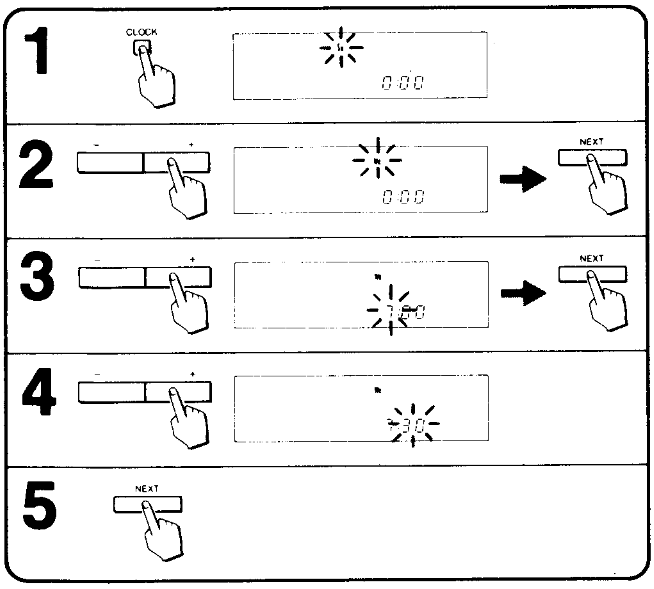
7 EURO-AV connector (21-pin)
Connect to the audio/video inputs of a TV/monitor, or to the audio/video inputs or outputs of a VTR.

8 AC mains lead

1-2. SETTING THE CLOCK D

D





Example: To set the clock to 19:30 (7:30 PM), Wednesday

1 Press the CLOCK button.
2 Press the +/– buttons to set the day of the week, then press the NEXT button.
3 Press the +/– buttons to set the hour, then press the NEXT button.
4 Press the +/– buttons to set the minute.
5 To set the time accurately, press the NEXT button at the same time as an announced time signal.

The clock starts.

Time indication

0:00 = midnight 12:00 = noon

Day of the week indication

Su = Sunday Mo = Monday Tu = Tuesday
We = Wednesday Th = Thursday Fr = Friday
Sa = Saturday

NEXT button

Each time the NEXT button is pressed, the next item to be set starts to blink.

+/– buttons

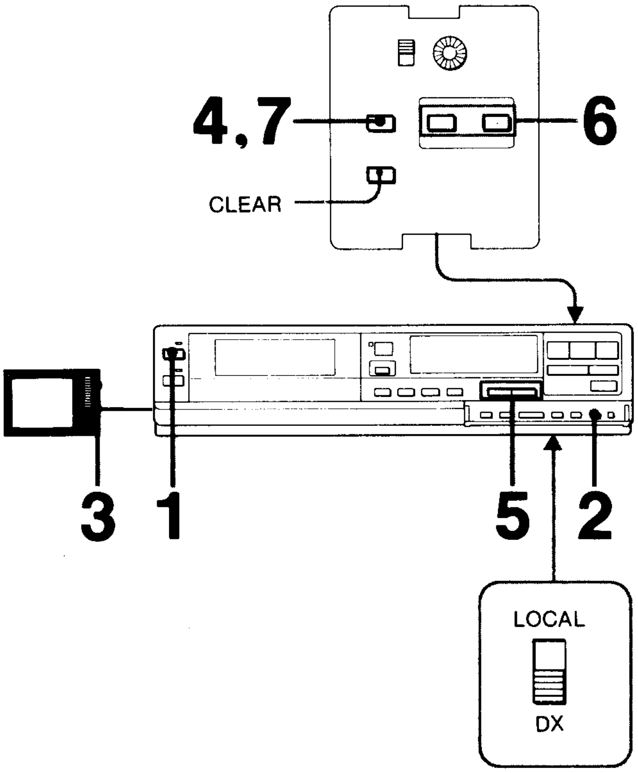
Press the + or – button once to advance to the sequential figure.
Hold the + or – button down to rapidly advance figures in sequence.

Note

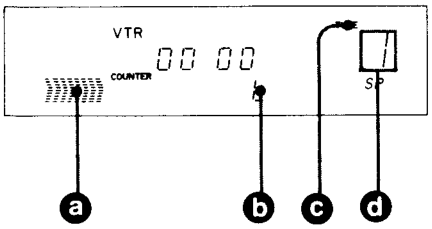
- If the CLOCK button is pressed inadvertently, press the NEXT button repeatedly until the dot of the colon blinks.
- When a power interruption occurs, "Su 0:00" blinks. Reset the clock.

1-3. PROGRAMMING TV STATIONS

E-1



E-2



AEP/HK Model

Notice for customers in a strong signal area
This unit has a booster to assure stable TV reception. However, in areas near TV stations, where the TV signal is very strong, the picture may be affected by the booster. If this happens, set the DX/LOCAL switch on the rear of the unit to LOCAL.

This VTR has 30 programme numbers. Once a TV station has been stored in a programme number, the station can be selected simply by pressing the +/– buttons, or the programme number buttons on the Commander.

To store the desired stations E-1

1 Press the ON/STANDBY switch.
2 Set the INPUT SELECT switch to TUNER.
3 Turn on the TV/monitor.
  - If the VTR is connected to the TV's aerial socket only:
    Select the programme position on the TV adjusted to receive the VTR signals.
  - If the VTR is connected to the TV's VIDEO/AUDIO IN jacks or MULTI IN connector:
    Select the VTR mode on the TV/monitor.
  - If the VTR is connected to the TV's SCART or PERI-TV connector:
    Press the TV/VTR button on the VTR so that "VTR" appears in the display window.
4 Press the SEARCH button. E-2
  The display in the window changes to the programming mode.
  ⓐ Indicates the approximate location within the band, of the station being tuned in.
  ⓑ Band

AEP model	AS model	HK model
• VHF Channels E2–S20 • UHF Channels 21–69	• VHF Channels 0–5 and 5a–11 • UHF Channels 28–34 and 39–63	• UHF Channels 21–68

  ⓒ Indicates that the unit is in the programming mode.
  ⓓ Programme number
5 Press the +/– buttons to select the programme number in which the station is to be stored.
6 Press the TUNING +/– buttons repeatedly until the desired station appears on the TV.
Repeat steps **5** and **6** for all the desired stations.
7 Press the SEARCH button again.

Skipping unused programme numbers

To have unused programme numbers skipped when the +/– buttons are pressed, follow the steps below.

1 Press the +/– buttons to select the number to be skipped.
2 Set the SEARCH button to ON.
3 Press the CLEAR button.
4 Set the SEARCH button to OFF.

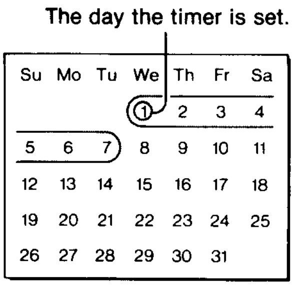
Fine tuning a weak station

Normally set the AFT switch to ON. The automatic fine tuning circuit fine tunes the stations for the best possible picture.
If the picture of a particular station is not acceptable, it can be fine tuned manually. Check that the SEARCH button is set to OFF, then set the AFT switch to OFF. Keep the TUNING +/– buttons pressed until the picture is clearest.
To view this particular station, always set the AFT switch to OFF.

1-4. TIMER-ACTIVATED RECORDING

The timer can be set to record up to six events on a certain day or every day within a seven-day period, or on the same day every week.

Example of a seven-day period

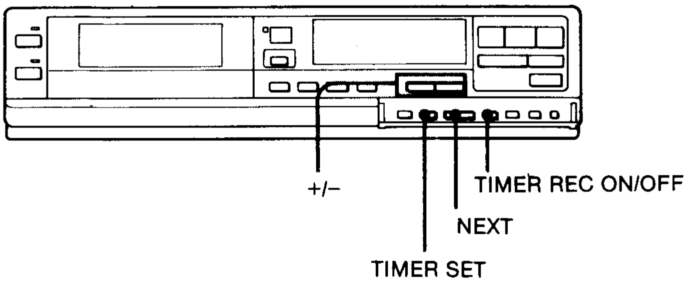

The day the timer is set.
Su Mo Tu We Th Fr Sa
1 2 3 4
5 6 7 8 9 10 11
12 13 14 15 16 17 18
19 20 21 22 23 24 25
26 27 28 29 30 31

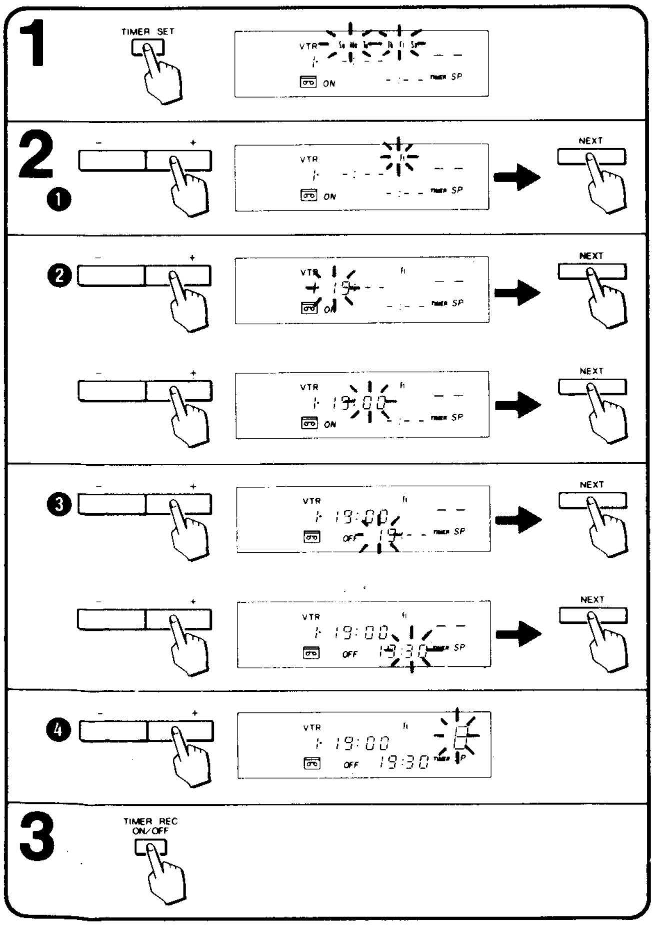
Before setting the timer

- Check to see if the clock is set correctly.
- Insert a cassette. Make sure that the tape is long enough and the safety tab is slid in.
- Press the SP/LP button to select the recording mode.
- Set the INPUT SELECT switch to TUNER.

To set the timer J

J


+/–
TIMER REC ON/OFF
NEXT
TIMER SET


1
TIMER SET
2
❶
NEXT
❷
❸
❹
3
TIMER REC ON/OFF
VTR
ON
OFF
SP

Example: To record TV programme 8, from 19:00 (7:00 PM) to 19:30 (7:30 PM) on Friday

1 Press the TIMER SET button.
A vacant event number is displayed on the left of the red dot.

2 Set the timer with the +/– buttons and the NEXT button.
First, press the +/– buttons to set the item which is blinking, and then press the NEXT button to memorize the setting. The next item to be set starts blinking.
❶ Set the day of the week.
Each time the + button is pressed, the indication changes as follows:

SU MO TU WE TH FR SA → SU → MO → ···· → FR → SA
(every day)
SA EVERY WEEK ← ···· ← MO EVERY WEEK ← SU EVERY WEEK

❷ Set the turn-on time.
❸ Set the turn-off time.
❹ Select the TV programme to be recorded.
When the NEXT button is pressed, the display returns to the time display.

Repeat steps 1 and 2 to set other desired events.

3 Press the TIMER REC ON/OFF button.
"TIMER REC" (red) appears in the display window to indicate that the VTR is set to the recording standby mode, and the power is turned off.

Once the TIMER REC ON/OFF button has been pressed, only the TIMER CHECK and TIMER REC ON/OFF buttons can be operated.
Recording starts at the preset time and when it ends, the power is turned off.

To record to the end of the tape
Set the turn-off time to a time after the tape will reach its end.

Before timer recording

To check the settings

Press the TIMER CHECK button.
Each time the button is pressed, the settings for each event is displayed in order.
The settings can be checked during timer recording as well.

To change the settings

1. Press the TIMER REC ON/OFF button so that "TIMER REC" disappears.
2. Press the TIMER CHECK button repeatedly until the setting to be changed is displayed.
3. Press the TIMER SET button.
4. Press the NEXT button repeatedly until the item to be changed blinks.
5. Press the +/– buttons to change the setting.
6. Press the NEXT button repeatedly until the current time is displayed.
7. Press the TIMER REC ON/OFF button to set the VTR to the recording standby mode.

To erase the setting of a particular event

1. Press the TIMER REC ON/OFF button so that "TIMER REC" disappears.
2. Press the TIMER CHECK button repeatedly until the event to be erased is displayed.
3. Press the CLEAR button to erase the selected event. The remaining event numbers will move up by the number of erased events.
4. Press the TIMER REC ON/OFF button to set the VTR to the recording standby mode for the remaining events.

To use the VTR before recording starts

Press the TIMER REC ON/OFF button so that "TIMER REC" disappears.
The VTR can now be used.
After operation, press the TIMER REC ON/OFF button again.

During timer recording

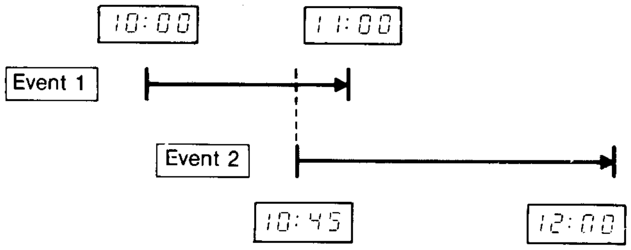
To stop the tape after recording has started

Press the TIMER REC ON/OFF button so that "TIMER REC" disappears.
The recording stops and the power is turned off.

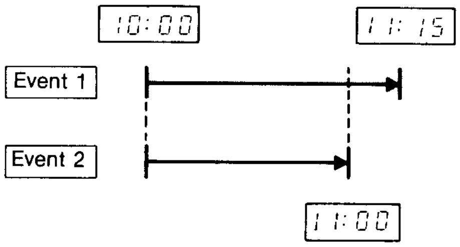
If the settings overlap

The recording will be made as in the following examples.
The actual recording made is indicated by the grey bar.

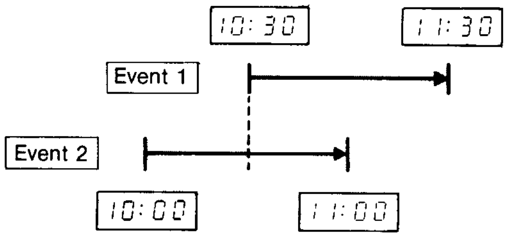
Example 1



Example 2



Example 3



After timer recording

When a recording has been completed, the setting of the recorded event is erased (except if it is set for every day), and the remaining event numbers will move up by one.

When a power interruption occurs

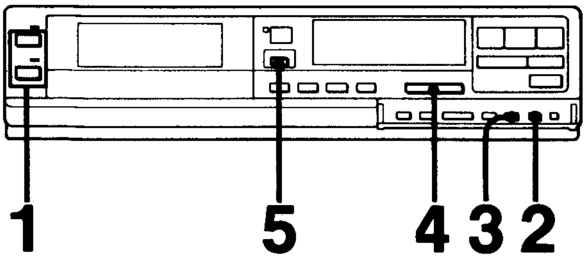
If "Su 0:00" blinks, the clock and the timer need to be reset. If the power is interrupted for less than about 3 seconds, the timer settings will be retained. However, the clock will lose a little time.

Notes

- The cassette is ejected when the safety tab is slid shut.
- If the TIMER SET button is pressed inadvertently, press the CLEAR button. The display returns to the time display.

1-5. QUICK TIMER RECORDING

K



A recording can be started and the duration of the recording can be set simultaneously, simply by pressing the QUICK TIMER button. The duration can be set for up to 5 hours in 30-minute intervals.
The duration can also be set after a regular non-timer recording has already been started.

To start a quick timer recording K

1 Turn on the unit and insert a cassette.
2 Set the INPUT SELECT switch to TUNER.
3 Press the SP/LP button to select the recording mode.
4 Press the +/– buttons to select the programme to be recorded.
5 Press the QUICK TIMER button repeatedly until the desired duration is displayed.
Each time the button is pressed, the indication changes as follows:

0:00 → 0:30 → 1:00 →···→ 5:00

"TIMER REC" appears in the display window and the recording starts immediately. As the recording continues, the duration indication decreases to show the remaining time. When the indication decreases to "0:00", the recording stops.

To set the duration after a regular recording has already begun
Press the QUICK TIMER button repeatedly until the desired duration is displayed.

To stop the recording, press the TIMER REC ON/OFF button.
The unit is turned off.

To stop the tape for a moment
Press the ❚❚ button.
Press again to resume recording.

To change the duration after recording has started
Press the QUICK TIMER button repeatedly until the desired duration is displayed.

When the tape is recorded to the end
The unit is turned off.

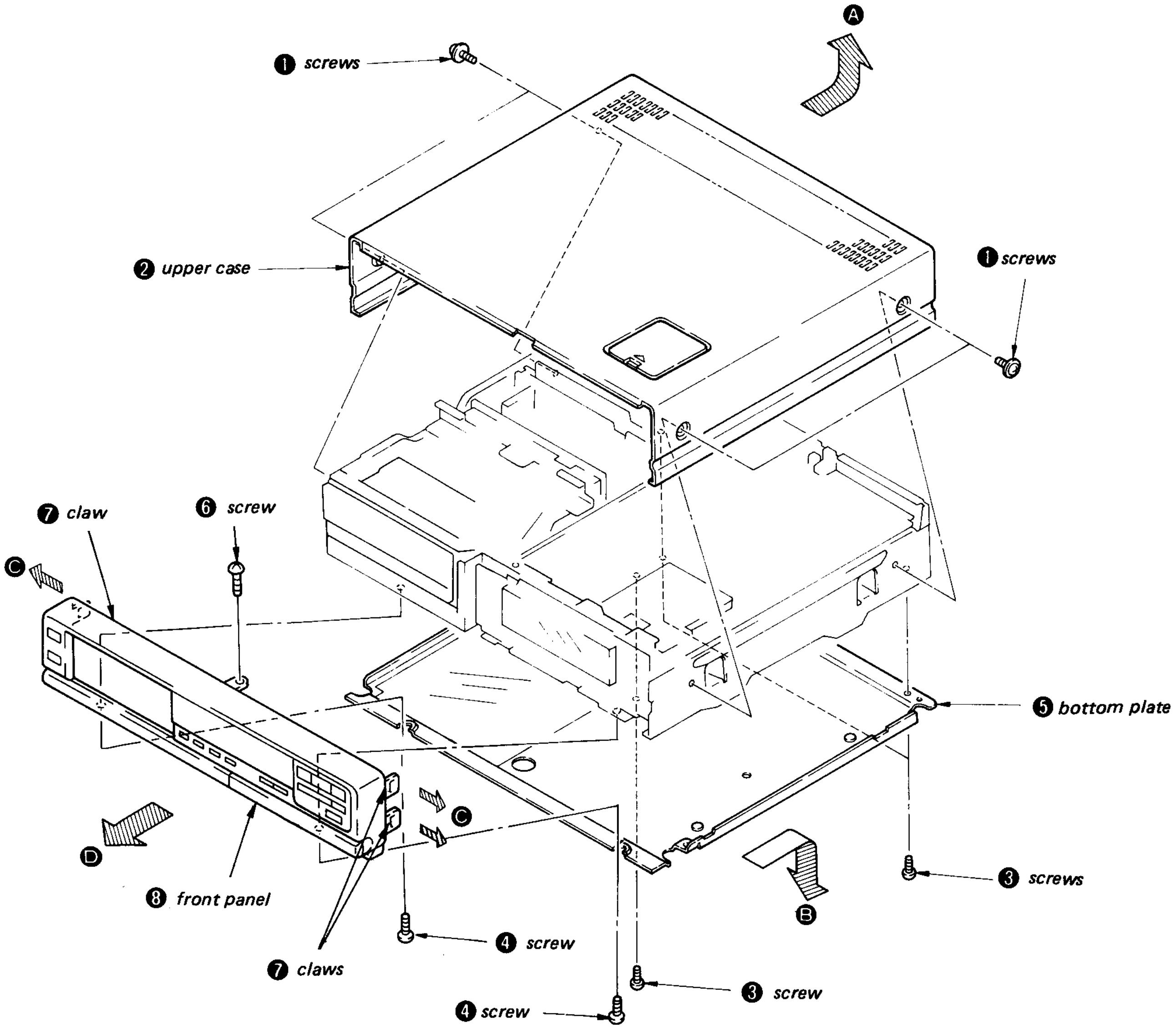
Note

The QUICK TIMER button cannot be operated when "TIMER REC" is displayed.

SECTION 2
DISASSEMBLY

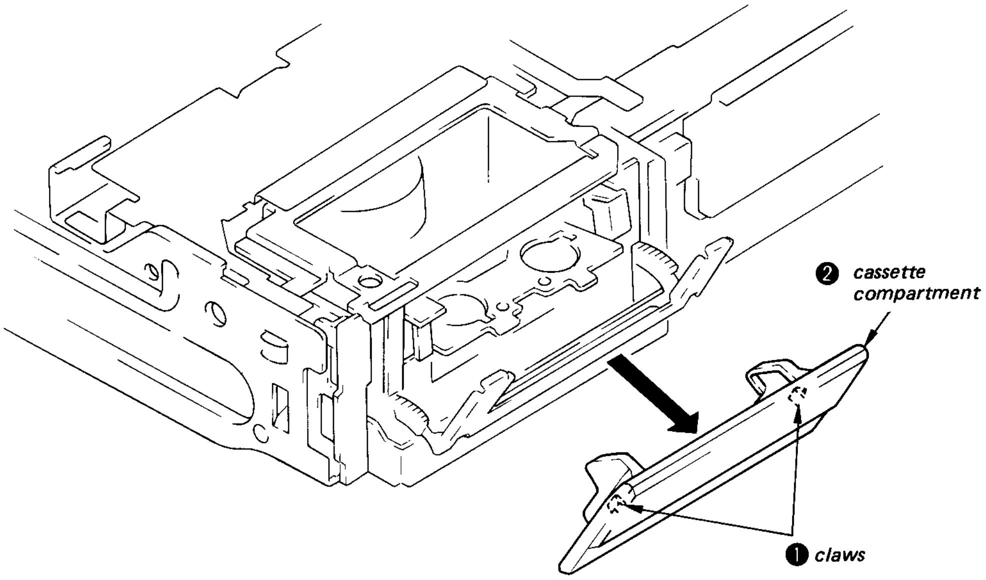
2-1. DISASSEMBLY OF CABINET

1) Remove four case screws ❶ and remove upper case ❷ in the direction shown by the arrow Ⓐ.
2) Remove three screws ❸ and loosen two screws ❹.
3) Remove bottom plate ❺ in the direction shown by the arrow Ⓑ.
4) Remove screw ❻.
5) Remove three claws ❼ in the direction shown by the arrow Ⓒ.
6) Remove front panel ❽ in the direction shown by the arrow Ⓓ.


Ⓐ
❶ screws
❷ upper case
❶ screws
❼ claw
❻ screw
Ⓒ
❺ bottom plate
Ⓒ
Ⓓ
❽ front panel
❸ screws
Ⓑ
❹ screw
❼ claws
❸ screw
❹ screw

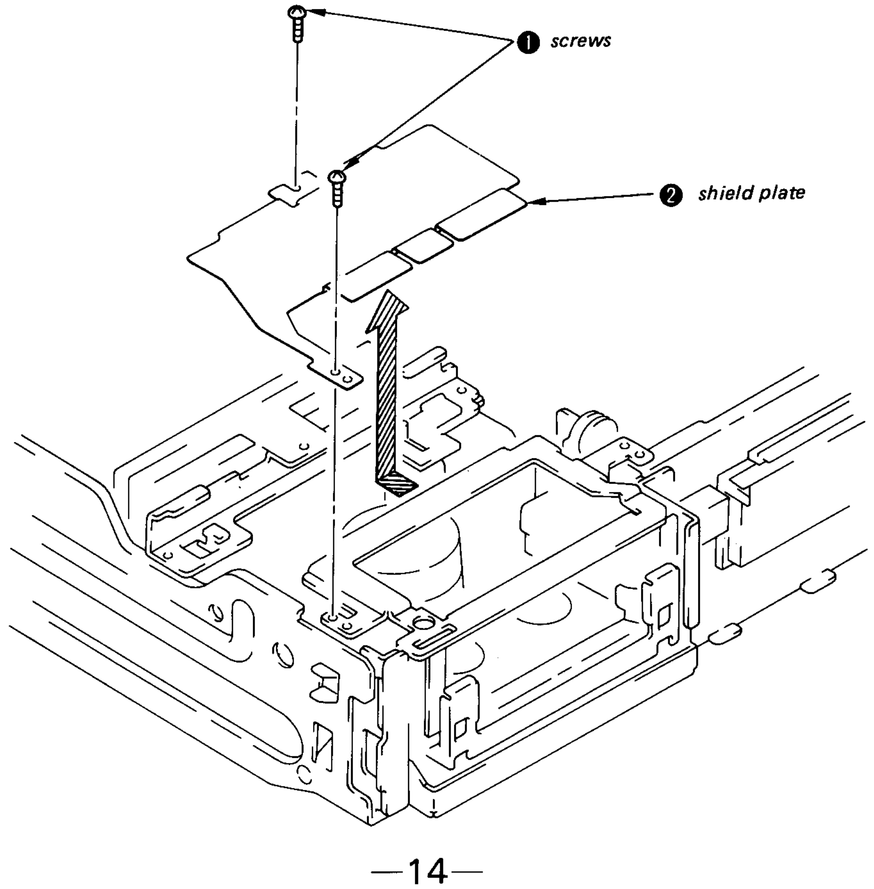
2-2. REMOVAL OF LID ASS'Y

1) Turn the power on and press the EJECT button to open the cassette compartment.
2) Release two claws ❶ and remove the cassette compartment lid ❷ in the direction shown by the arrow.


❷ cassette compartment
❶ claws

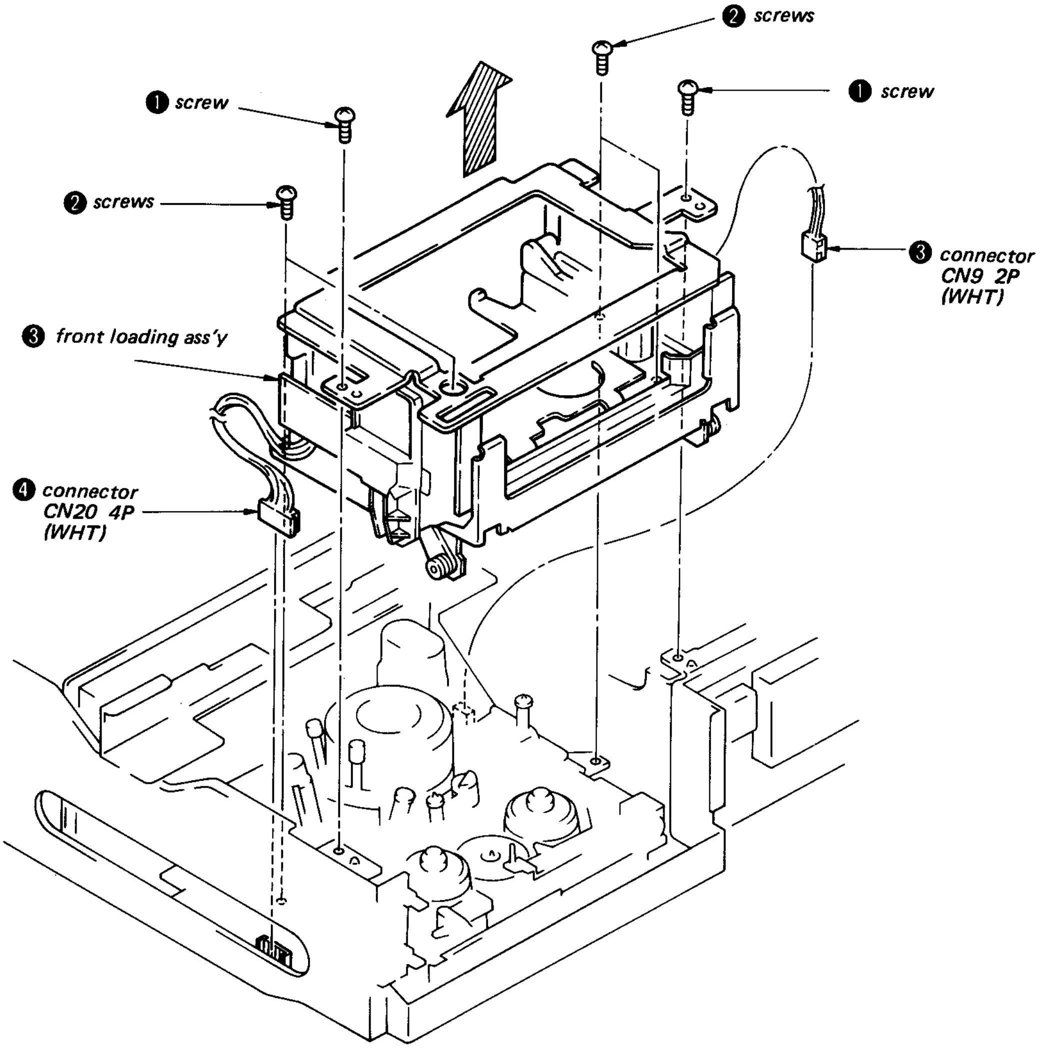
2-3. REMOVAL OF SHIELD PLATE

1) Remove two screws ❶ .
2) Remove shield plate ❷ in the direction shown by the arrow.


❶ screws
❷ shield plate

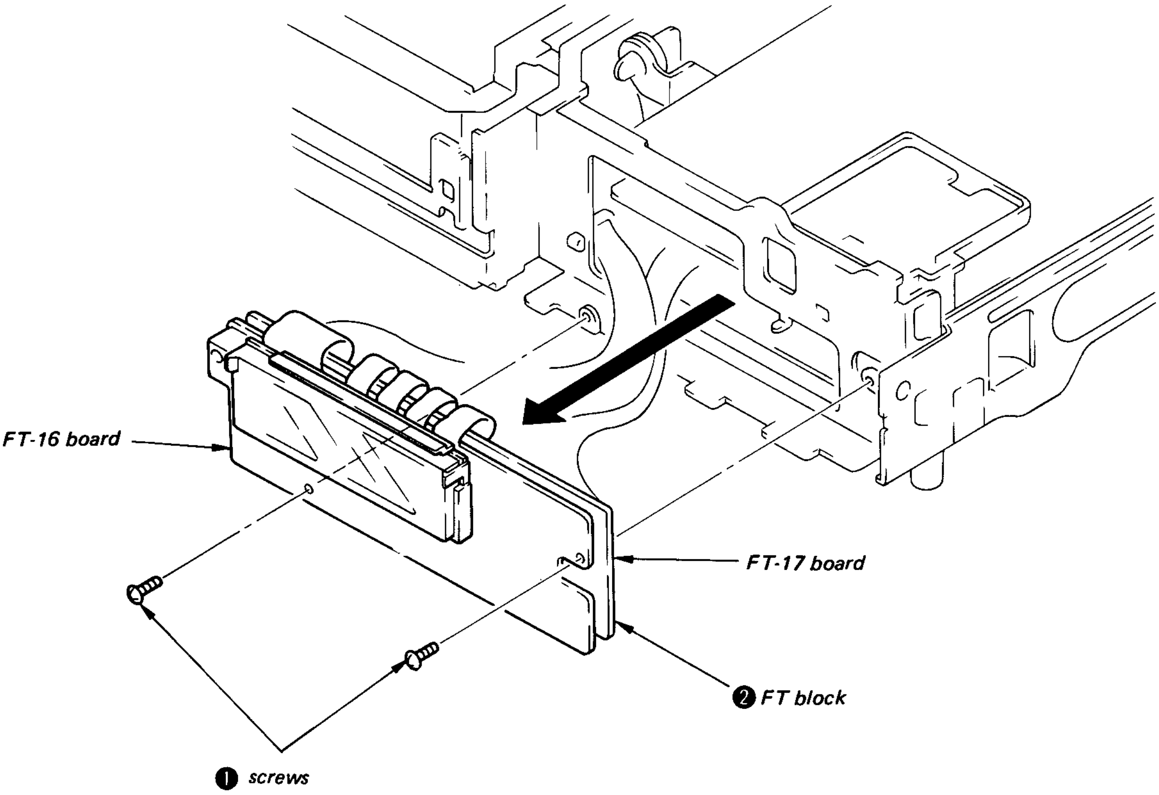
2-4. REMOVAL OF FRONT LOADING ASS'Y

1) Remove two screws ❶.
2) Remove four screws ❷.
3) Disconnect two connectors ❸ (CN9, CN20).
4) Remove front loading ass'y ❹ in the direction shown by the arrow.


❷ screws
❶ screw
❶ screw
❷ screws
❸ connector
CN9 2P
(WHT)
❸ front loading ass'y
❹ connector
CN20 4P
(WHT)

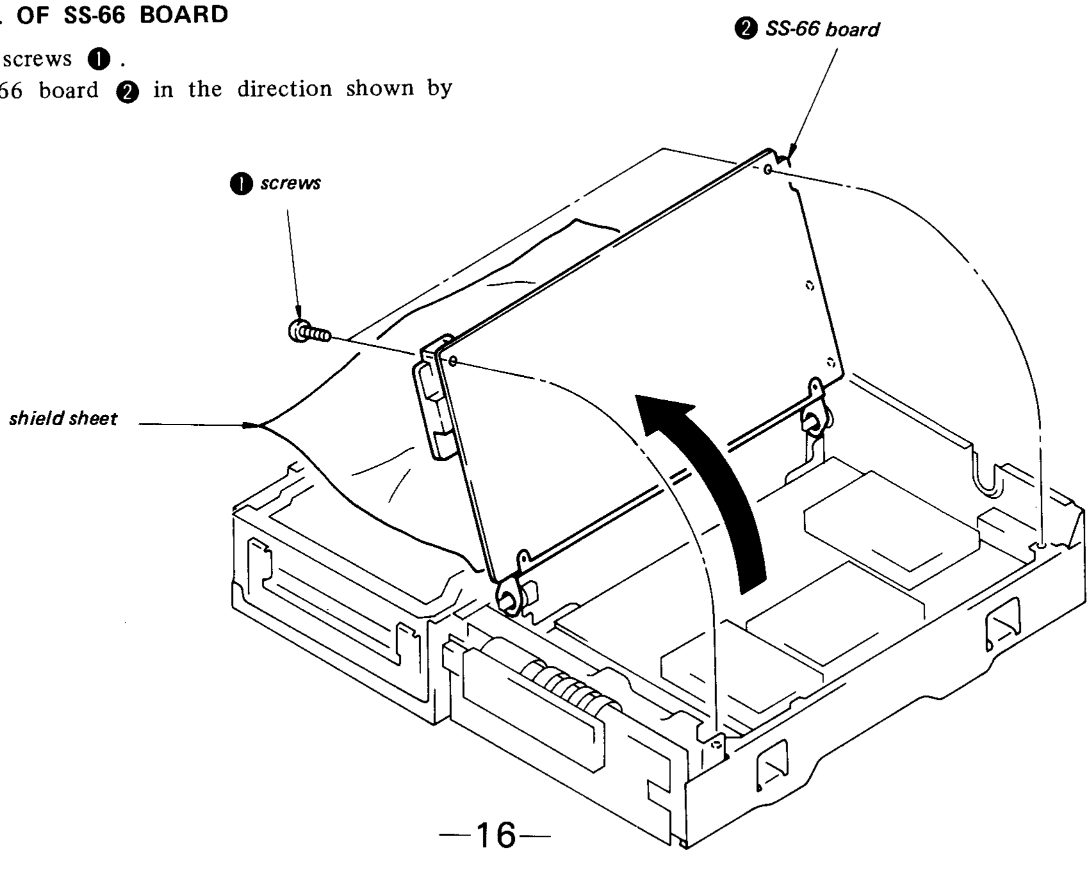
2-5. REMOVAL OF FT BLOCK

1) Remove two screws ❶ .
2) Remove FT block ❷ in the direction shown by the arrow.


FT-16 board
FT-17 board
❷ FT block
❶ screws

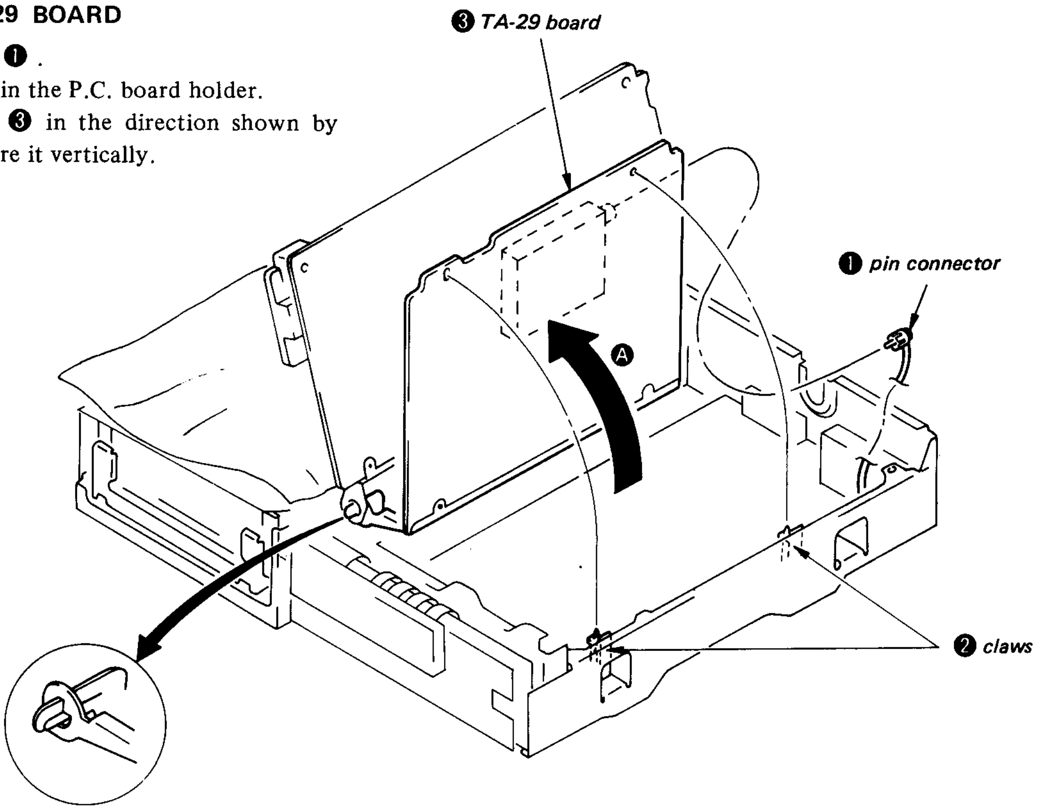
2-6. REMOVAL OF SS-66 BOARD

1) Remove two screws ❶ .
2) Remove SS-66 board ❷ in the direction shown by the arrow.


❷ SS-66 board
❶ screws
shield sheet

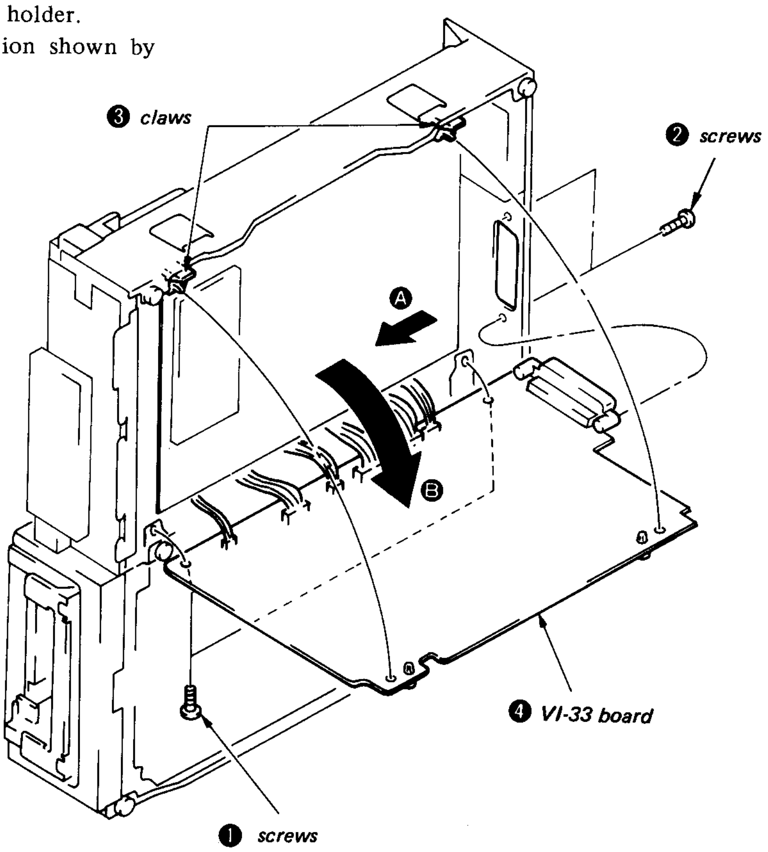
2-7. REMOVAL OF TA-29 BOARD

1) Remove pin connector ❶ .
2) Remove two claws ❷ in the P.C. board holder.
3) Remove TA-29 board ❸ in the direction shown by the arrow Ⓐ and secure it vertically.


❸ TA-29 board
❶ pin connector
Ⓐ
❷ claws

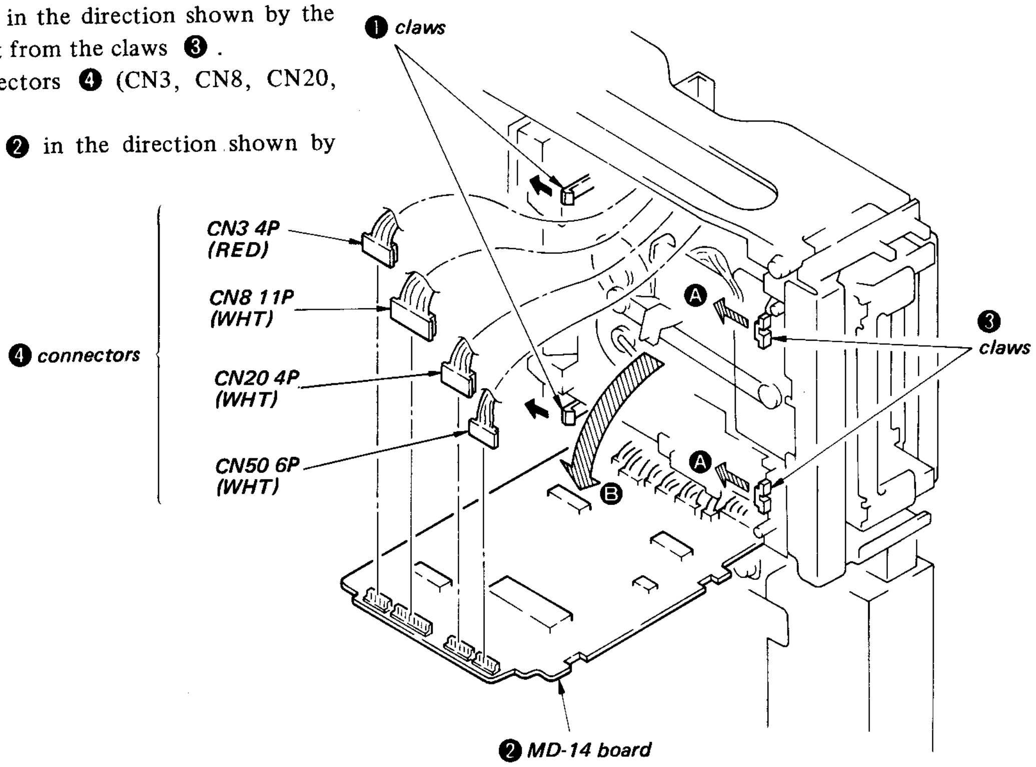
2-8. REMOVAL OF VI-33 BOARD

1) Remove two screws ❶ .
2) Remove two screws ❷ .
3) Remove two claws ❸ in the P.C. board holder.
4) Remove VI-33 board ❹ in the direction shown by the arrow Ⓐ and Ⓑ .


❸ claws
❷ screws
Ⓐ
Ⓑ
❹ VI-33 board
❶ screws

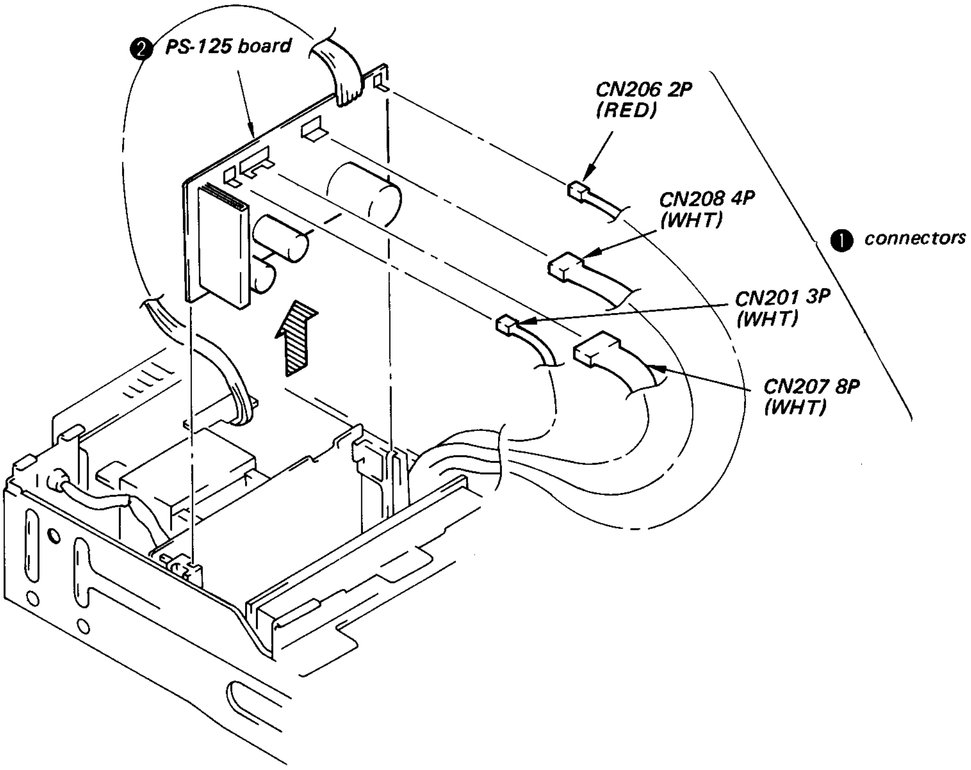
2-9. REMOVAL OF MD-14 BOARD

1) Remove two claws ❶ .
2) Shift MD-14 board ❷ in the direction shown by the arrow Ⓐ and detach it from the claws ❸ .
3) Disconnect four connectors ❹ (CN3, CN8, CN20, CN50).
4) Remove MD-14 board ❷ in the direction shown by the arrow Ⓑ .


❶ claws
CN3 4P (RED)
CN8 11P (WHT)
❹ connectors
CN20 4P (WHT)
CN50 6P (WHT)
Ⓐ
Ⓐ
Ⓑ
❸ claws
❷ MD-14 board

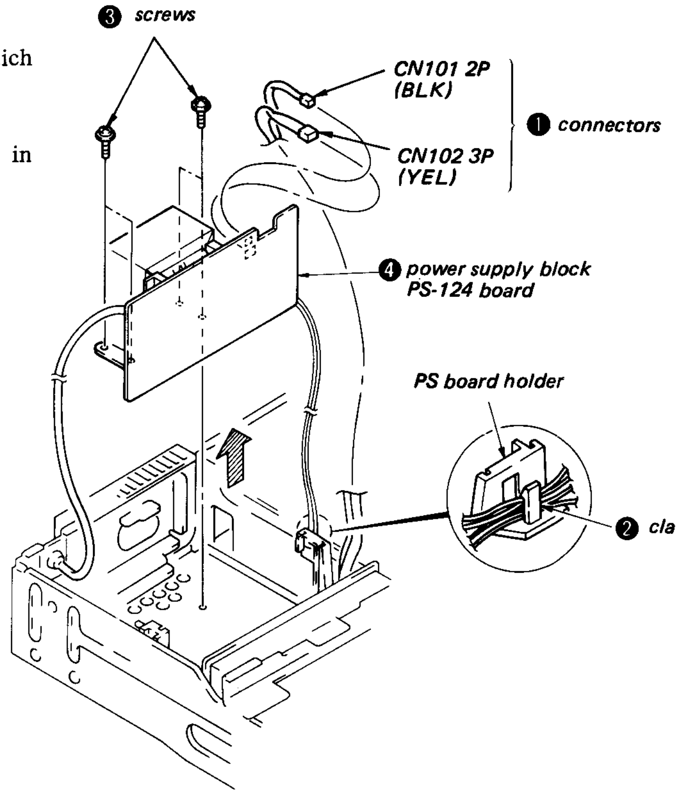
2-10. REMOVAL OF PS-125 BOARD

1) Disconnect four connectors ❶ (CN201, CN206, CN207, CN208).
2) Remove the PS-125 board ❷ in the direction shown by the arrow.


❷ PS-125 board
CN206 2P (RED)
CN208 4P (WHT)
❶ connectors
CN201 3P (WHT)
CN207 8P (WHT)

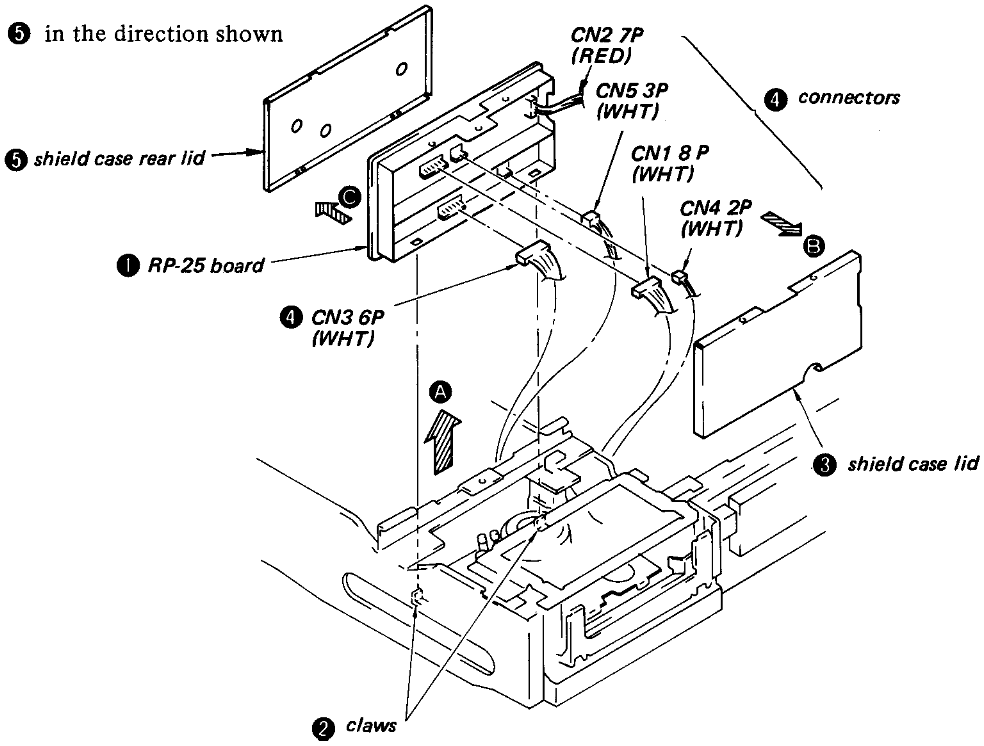
2-11. REMOVAL OF POWER SUPPLY BLOCK PS-124 BOARD

1) Disconnect two connectors ❶ (CN101, CN102).
2) Remove the wiring from claw ❷ of PS board which hold down the wiring.
3) Remove four screws ❸ .
4) Remove the power supply block PS-124 board ❹ in the direction shown by the arrow.


❸ screws
CN101 2P (BLK)
CN102 3P (YEL)
❶ connectors
❹ power supply block PS-124 board
PS board holder
❷ claw

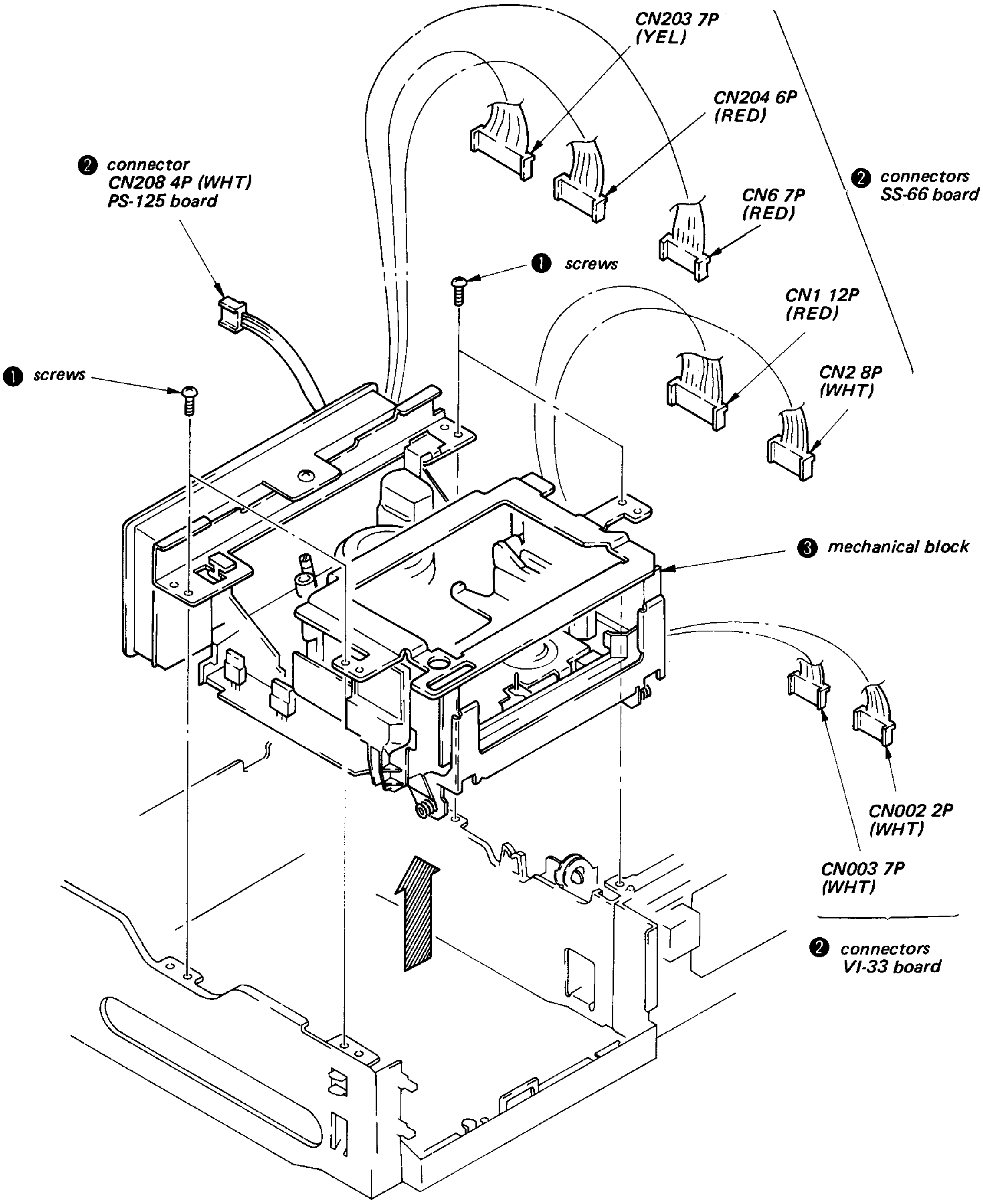
2-12. REMOVAL OF RP-25 BOARD

1) Hold RP-25 board ❶ upward in the direction shown by the arrow Ⓐ and detach it from the claws ❷ .
2) Remove shield case lid ❸ in the direction shown by the arrow Ⓑ .
3) Disconnect five connectors ❹ (CN1, CN2, CN3, CN4, CN5).
4) Remove shield case rear lid ❺ in the direction shown by the arrow Ⓒ .


CN2 7P (RED)
CN5 3P (WHT)
❹ connectors
❺ shield case rear lid
CN1 8 P (WHT)
Ⓒ
CN4 2P (WHT)
Ⓑ
❶ RP-25 board
❹ CN3 6P (WHT)
Ⓐ
❸ shield case lid
❷ claws

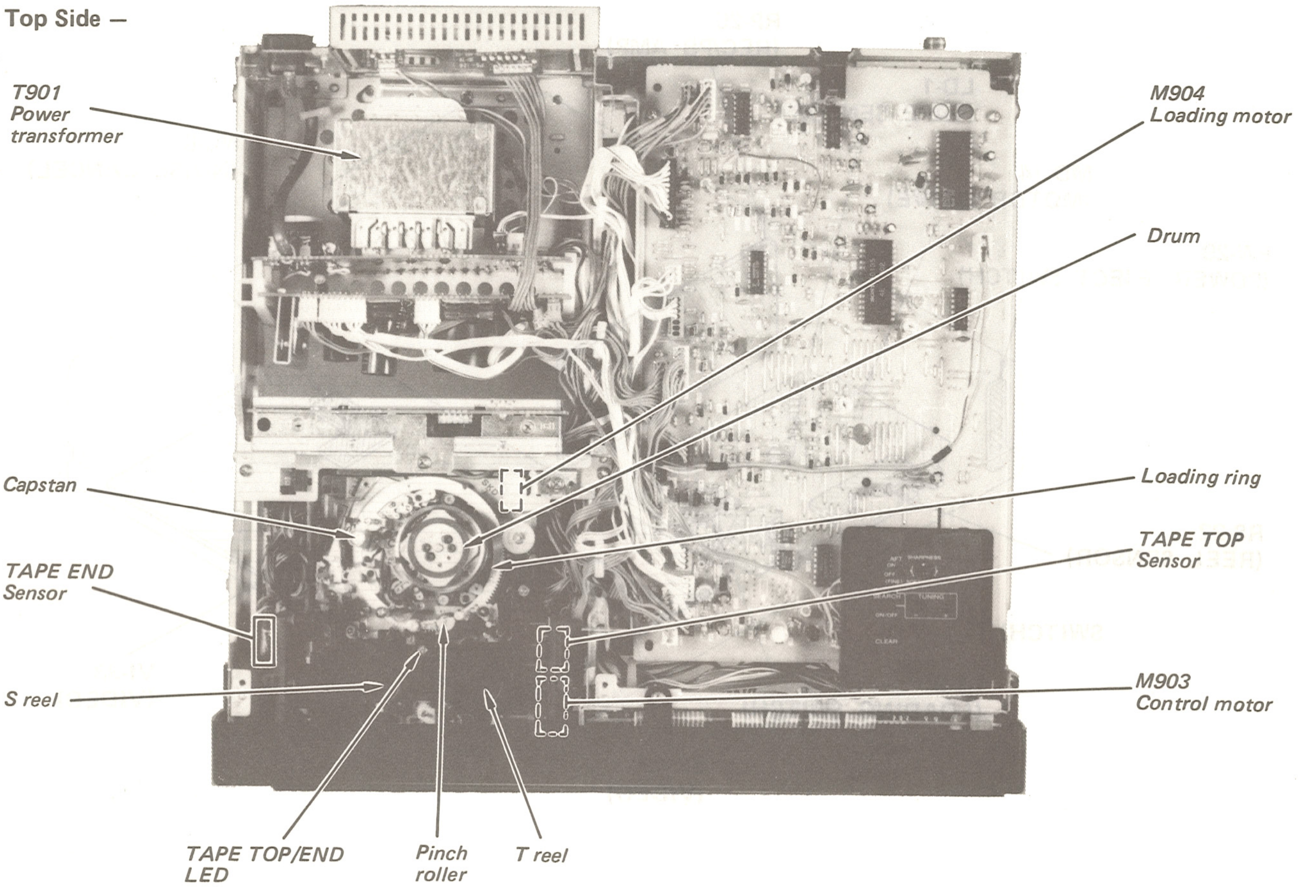
2-13. REMOVAL OF MECHANICAL BLOCK

1) Remove four screws ❶.
2) Disconnect eight connectors ❷ (CN1, CN2, CN6, CN002, CN003, CN203, CN204, CN208).
3) Remove mechanical block ❸ in the direction shown by the arrow.

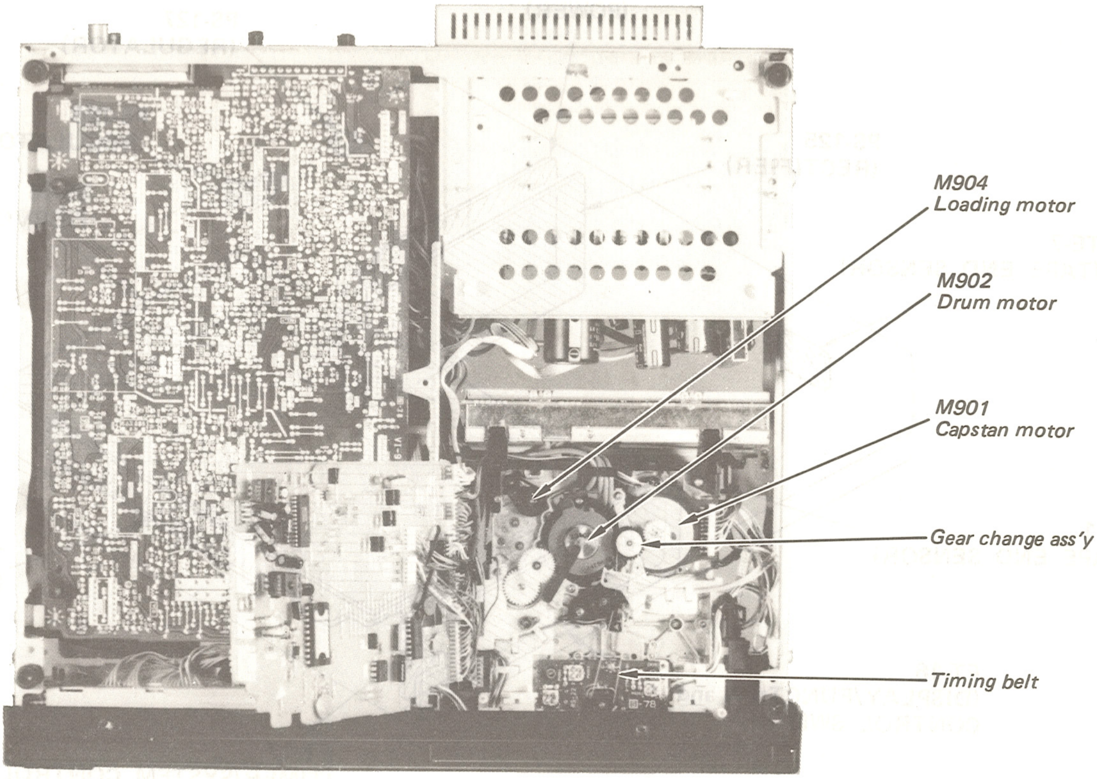

CN203 7P (YEL)
CN204 6P (RED)
❷ connector CN208 4P (WHT) PS-125 board
CN6 7P (RED)
❷ connectors SS-66 board
❶ screws
CN1 12P (RED)
❶ screws
CN2 8P (WHT)
❸ mechanical block
CN002 2P (WHT)
CN003 7P (WHT)
❷ connectors VI-33 board

2-14. INTERNAL VIEWS

— Top Side —

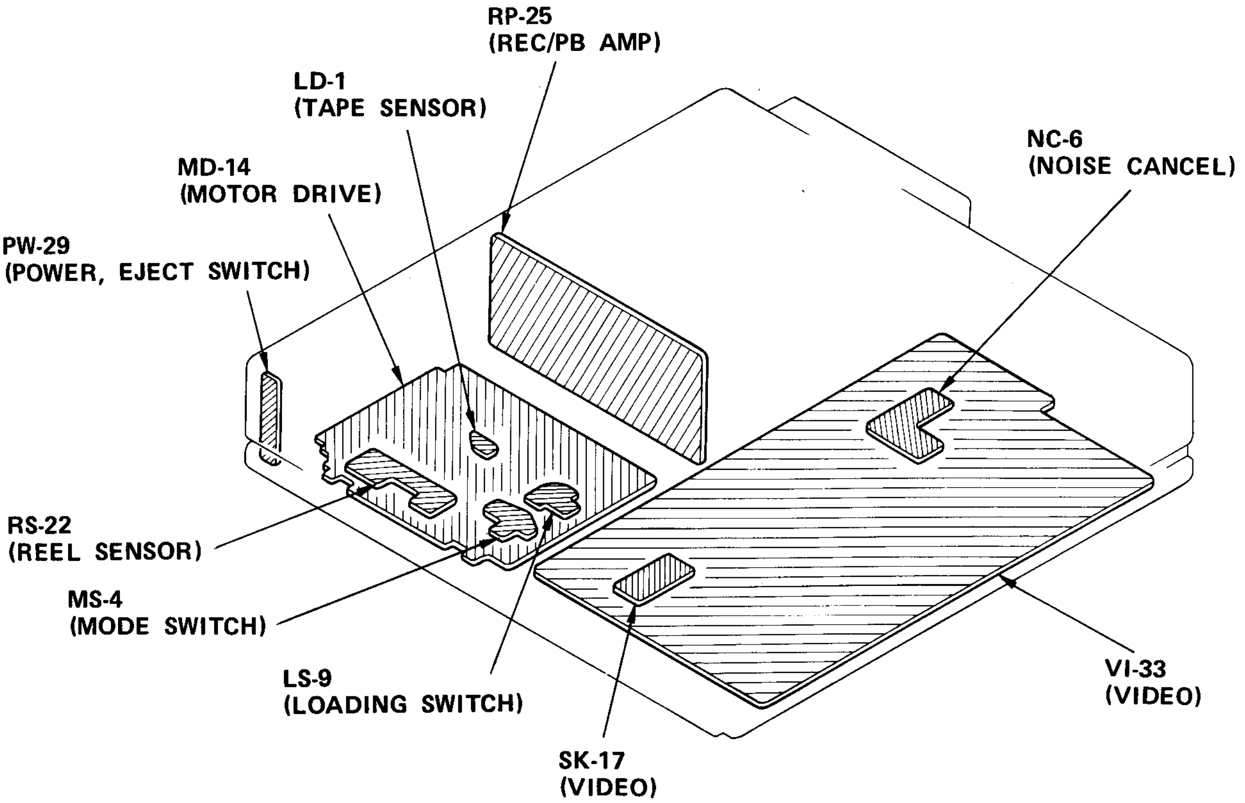

T901
Power
transformer
M904
Loading motor
Drum
Capstan
Loading ring
TAPE TOP
Sensor
TAPE END
Sensor
S reel
M903
Control motor
TAPE TOP/END
LED
Pinch
roller
T reel

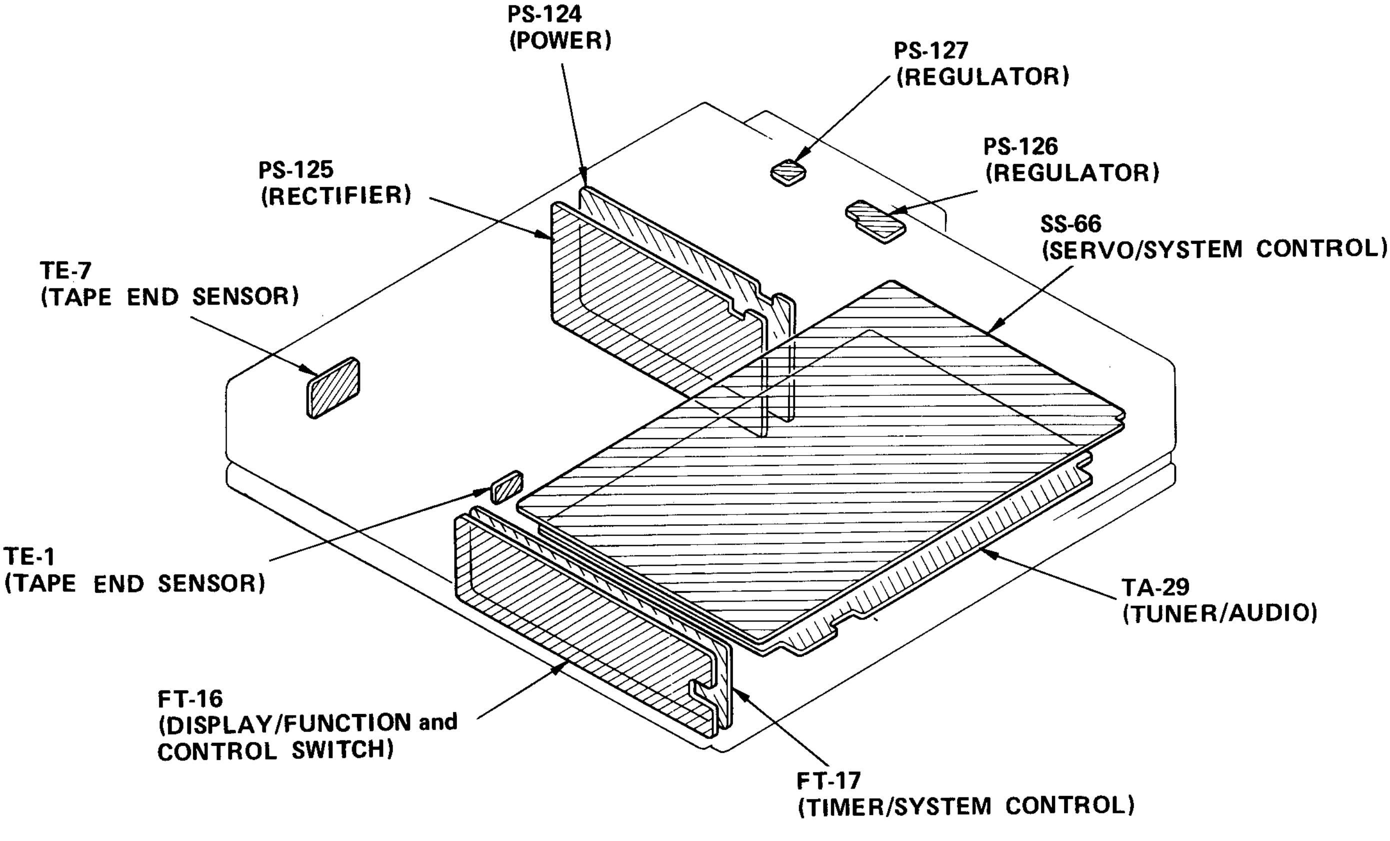
— Bottom Side —


M904
Loading motor
M902
Drum motor
M901
Capstan motor
Gear change ass'y
Timing belt

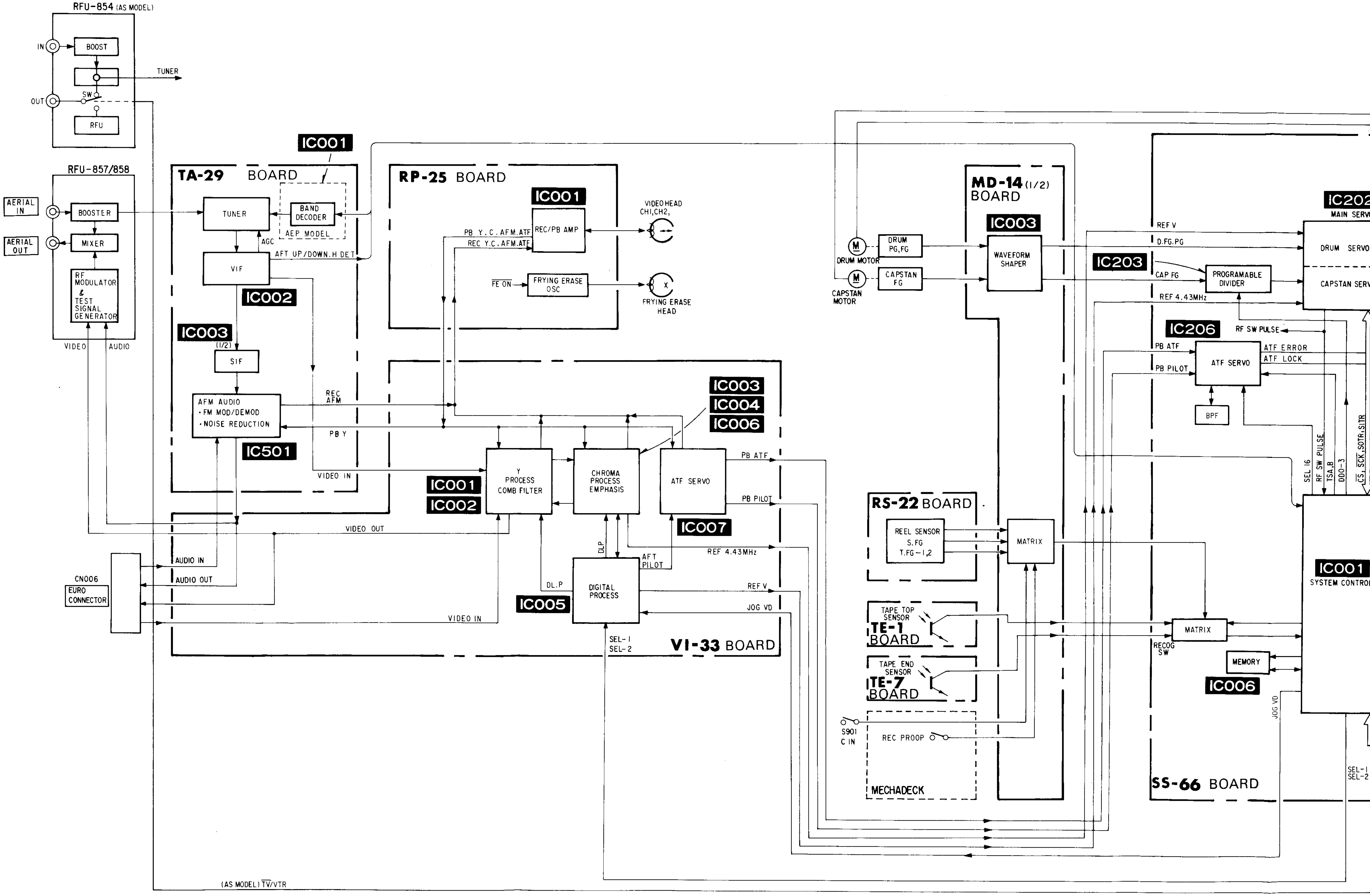
SECTION 3
DIAGRAMS

3-1. CIRCUIT BOARDS LOCATION

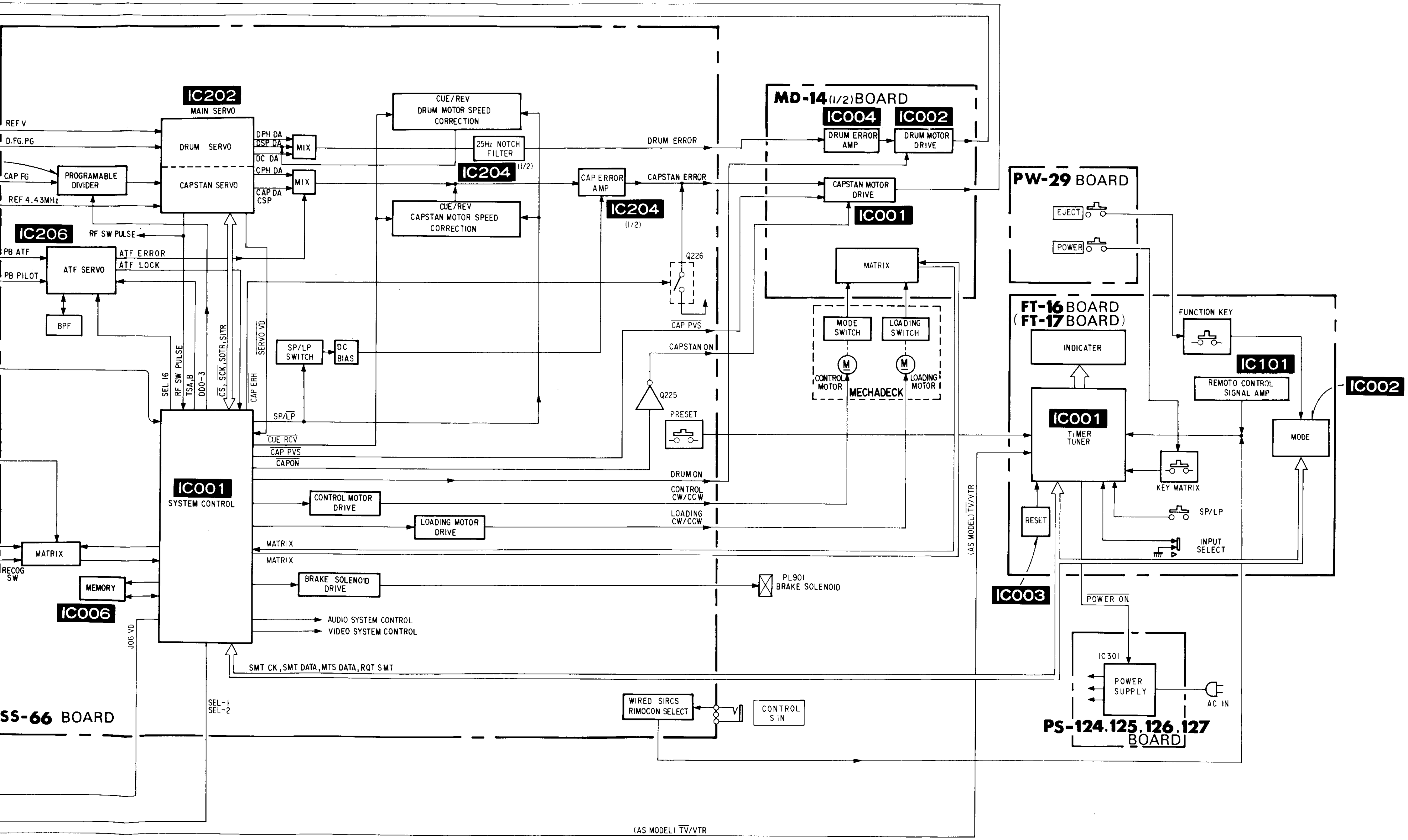

RP-25
(REC/PB AMP)
LD-1
(TAPE SENSOR)
MD-14
(MOTOR DRIVE)
NC-6
(NOISE CANCEL)
PW-29
(POWER, EJECT SWITCH)
RS-22
(REEL SENSOR)
MS-4
(MODE SWITCH)
LS-9
(LOADING SWITCH)
VI-33
(VIDEO)
SK-17
(VIDEO)


PS-124
(POWER)
PS-127
(REGULATOR)
PS-125
(RECTIFIER)
PS-126
(REGULATOR)
SS-66
(SERVO/SYSTEM CONTROL)
TE-7
(TAPE END SENSOR)
TE-1
(TAPE END SENSOR)
TA-29
(TUNER/AUDIO)
FT-16
(DISPLAY/FUNCTION and
CONTROL SWITCH)
FT-17
(TIMER/SYSTEM CONTROL)

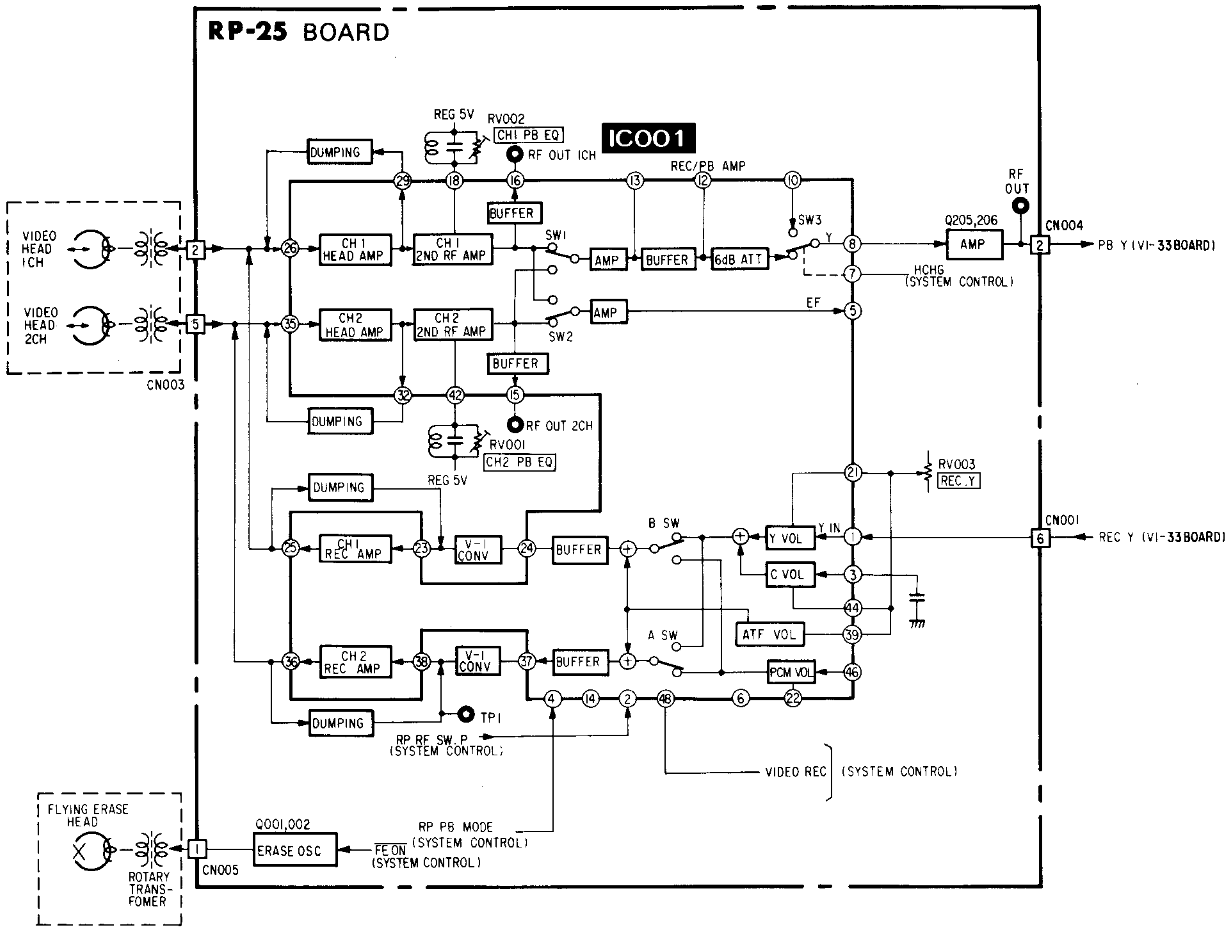
3-2. OVERALL BLOCK DIAGRAM

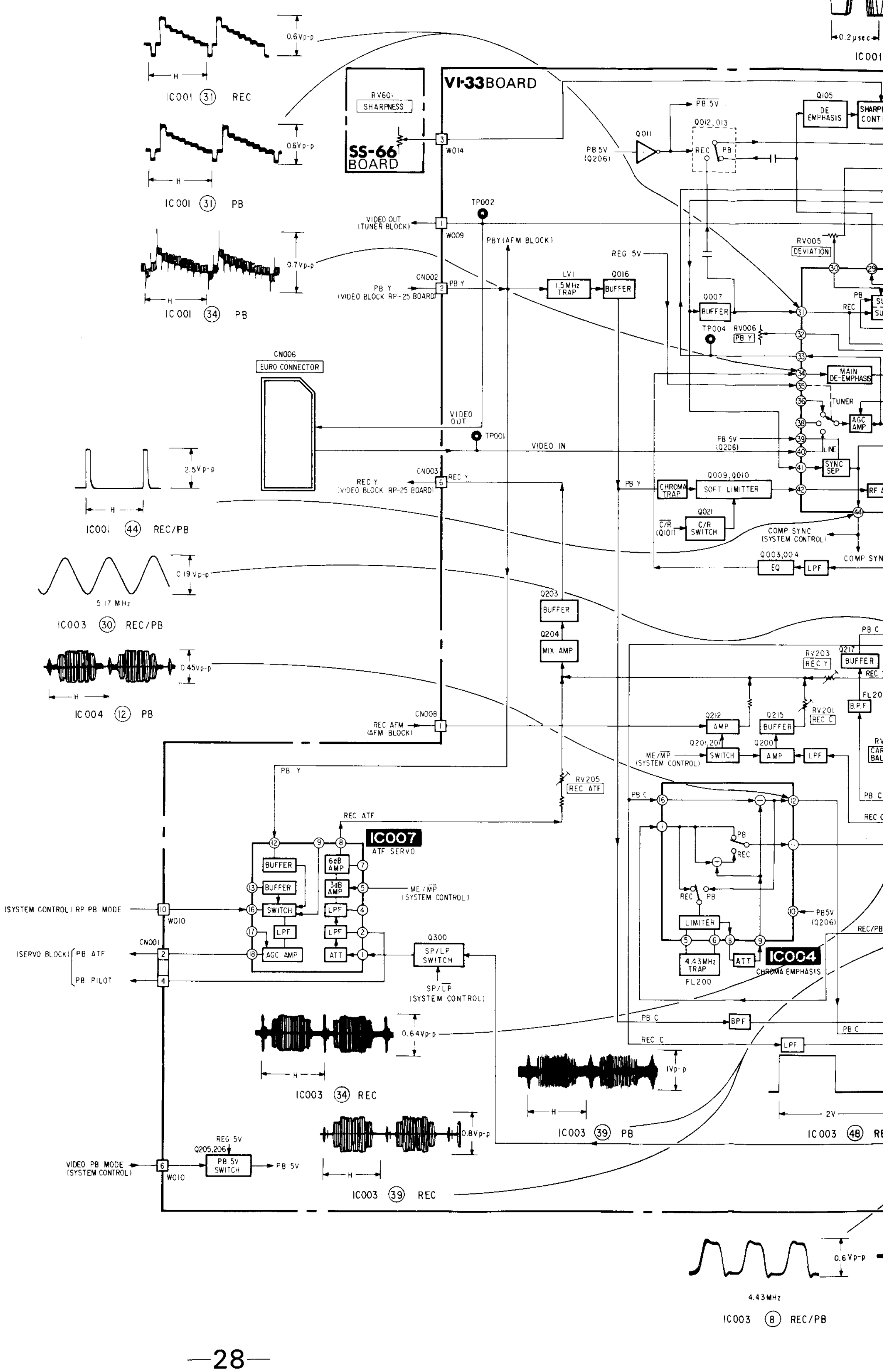


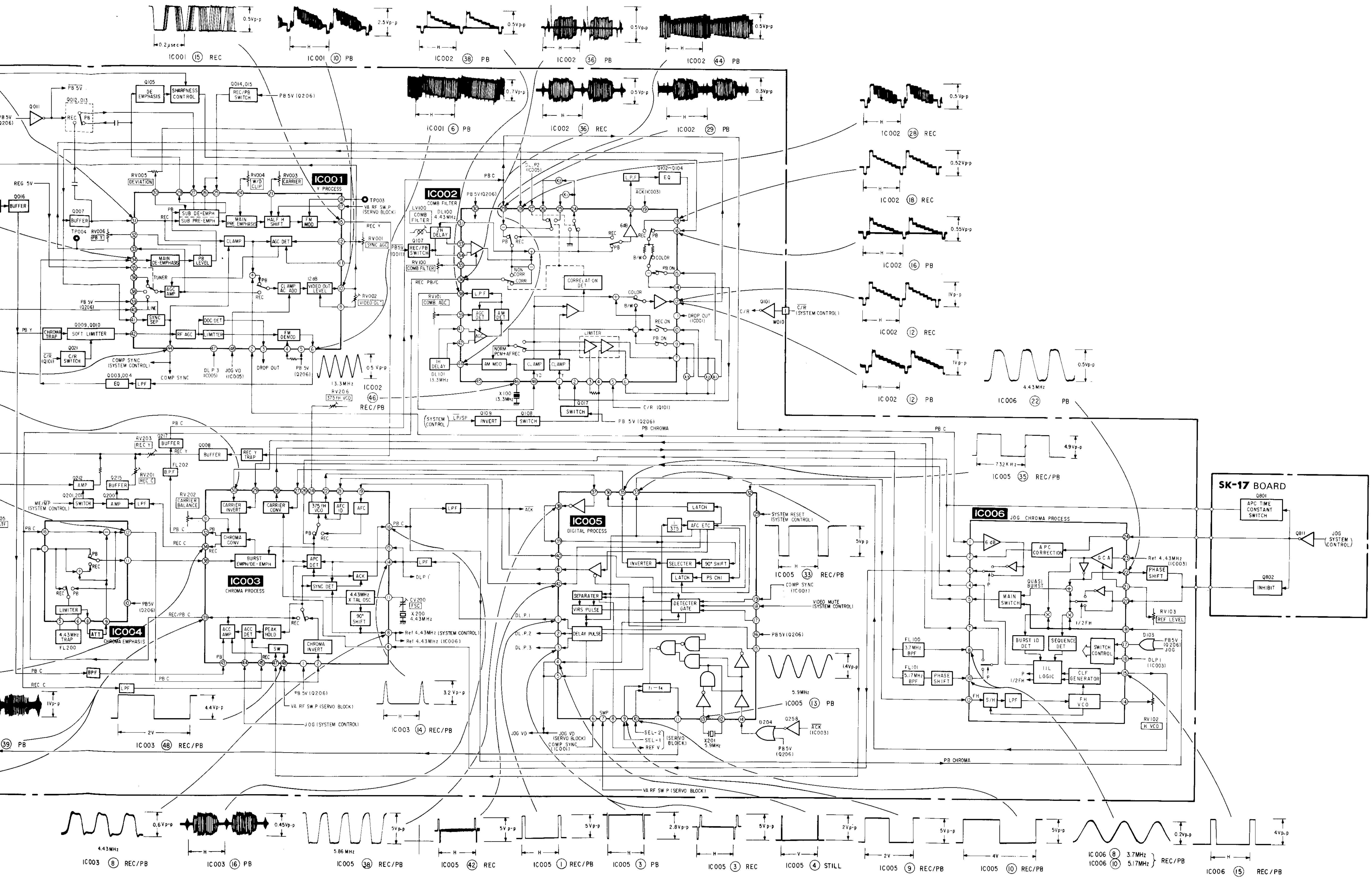
RFU-854 (AS MODEL)
IN
BOOST
TUNER
OUT
SW
RFU
RFU-857/858
AERIAL IN
BOOSTER
AERIAL OUT
MIXER
RF MODULATOR & TEST SIGNAL GENERATOR
VIDEO
AUDIO
IC001
TA-29 BOARD
TUNER
BAND DECODER
AEP MODEL
AGC
VIF
AFT UP/DOWN.H DET
IC002
IC003 (1/2)
SIF
AFM AUDIO
• FM MOD/DEMOD
• NOISE REDUCTION
IC501
REC AFM
PB Y
VIDEO IN
RP-25 BOARD
IC001
REC/PB AMP
PB Y.C.AFM.ATF
REC Y.C.AFM.ATF
VIDEO HEAD CH1,CH2,
FE ON
FRYING ERASE OSC
FRYING ERASE HEAD
IC003
IC004
IC006
IC001
IC002
Y PROCESS COMB FILTER
CHROMA PROCESS EMPHASIS
ATF SERVO
IC007
PB ATF
PB PILOT
REF 4.43MHz
DLP
DL.P
AFT PILOT
DIGITAL PROCESS
IC005
REF V
JOG VD
SEL-1
SEL-2
VI-33 BOARD
VIDEO OUT
AUDIO IN
AUDIO OUT
VIDEO IN
CN006
EURO CONNECTOR
(AS MODEL) TV/VTR
DRUM MOTOR
DRUM PG,FG
CAPSTAN MOTOR
CAPSTAN FG
MD-14 (1/2) BOARD
IC003
WAVEFORM SHAPER
RS-22 BOARD
REEL SENSOR S.FG T.FG-1,2
MATRIX
TAPE TOP SENSOR
TE-1 BOARD
TAPE END SENSOR
TE-7 BOARD
S901 C IN
REC PROOP
MECHADECK
REF V
D.FG.PG
IC203
CAP FG
PROGRAMABLE DIVIDER
REF 4.43MHz
IC202
MAIN SERVO
DRUM SERVO
CAPSTAN SERVO
IC206
RF SW PULSE
PB ATF
PB PILOT
ATF SERVO
ATF ERROR
ATF LOCK
BPF
SEL 16
RF SW PULSE
TSA,B
D00-3
CS,SCK,SOTR,SITR
IC001
SYSTEM CONTROL
MATRIX
RECOG SW
MEMORY
IC006
JOG VD
SEL-1
SEL-2
SS-66 BOARD


IC202
MAIN SERVO
REF V
D.FG.PG
CAP FG
REF 4.43MHz
PROGRAMABLE DIVIDER
DRUM SERVO
CAPSTAN SERVO
DPH DA
DSP DA
DC DA
CPH DA
CAP DA
CSP
MIX
MIX
CUE/REV DRUM MOTOR SPEED CORRECTION
25Hz NOTCH FILTER
IC204
(1/2)
CUE/REV CAPSTAN MOTOR SPEED CORRECTION
CAP ERROR AMP
IC204
(1/2)
DRUM ERROR
CAPSTAN ERROR
IC206
RF SW PULSE
PB ATF
PB PILOT
ATF SERVO
ATF ERROR
ATF LOCK
BPF
Q226
CAP PVS
CAPSTAN ON
Q225
PRESET
SP/LP SWITCH
DC BIAS
SEL 16
RF SW PULSE
TSA,B
DDO-3
CS, SCK, SOTR, SITR
CAP ERH
SERVO VD
SP/LP
CUE RCV
CAP PVS
CAPON
DRUM ON
CONTROL CW/CCW
LOADING CW/CCW
IC001
SYSTEM CONTROL
CONTROL MOTOR DRIVE
LOADING MOTOR DRIVE
MATRIX
MATRIX
MATRIX
RECOG SW
MEMORY
IC006
BRAKE SOLENOID DRIVE
PL901
BRAKE SOLENOID
AUDIO SYSTEM CONTROL
VIDEO SYSTEM CONTROL
JOG VD
SMT CK, SMT DATA, MTS DATA, RQT SMT
SEL-1
SEL-2
WIRED SIRCS RIMOCON SELECT
CONTROL S IN
SS-66 BOARD
(AS MODEL) TV/VTR
MD-14 (1/2) BOARD
IC004
IC002
DRUM ERROR AMP
DRUM MOTOR DRIVE
CAPSTAN MOTOR DRIVE
IC001
MATRIX
MODE SWITCH
LOADING SWITCH
M
M
CONTROL MOTOR
LOADING MOTOR
MECHADECK
PW-29 BOARD
EJECT
POWER
FT-16 BOARD
(FT-17 BOARD)
FUNCTION KEY
INDICATER
IC101
REMOTO CONTROL SIGNAL AMP
IC002
IC001
TIMER TUNER
MODE
KEY MATRIX
SP/LP
INPUT SELECT
RESET
IC003
(AS MODEL) TV/VTR
POWER ON
IC301
POWER SUPPLY
AC IN
PS-124, 125, 126, 127 BOARD

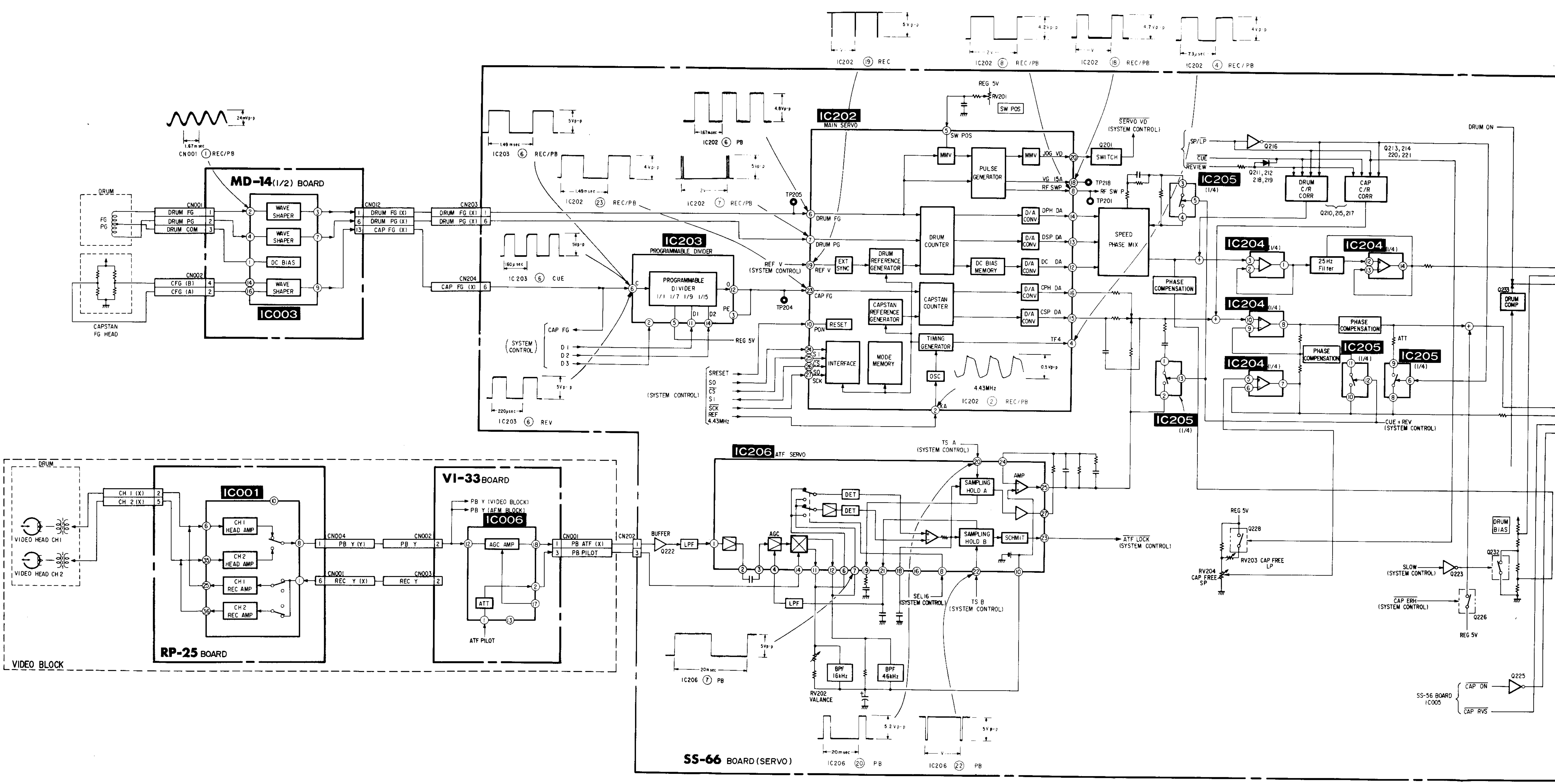
3-3. VIDEO BLOCK DIAGRAM

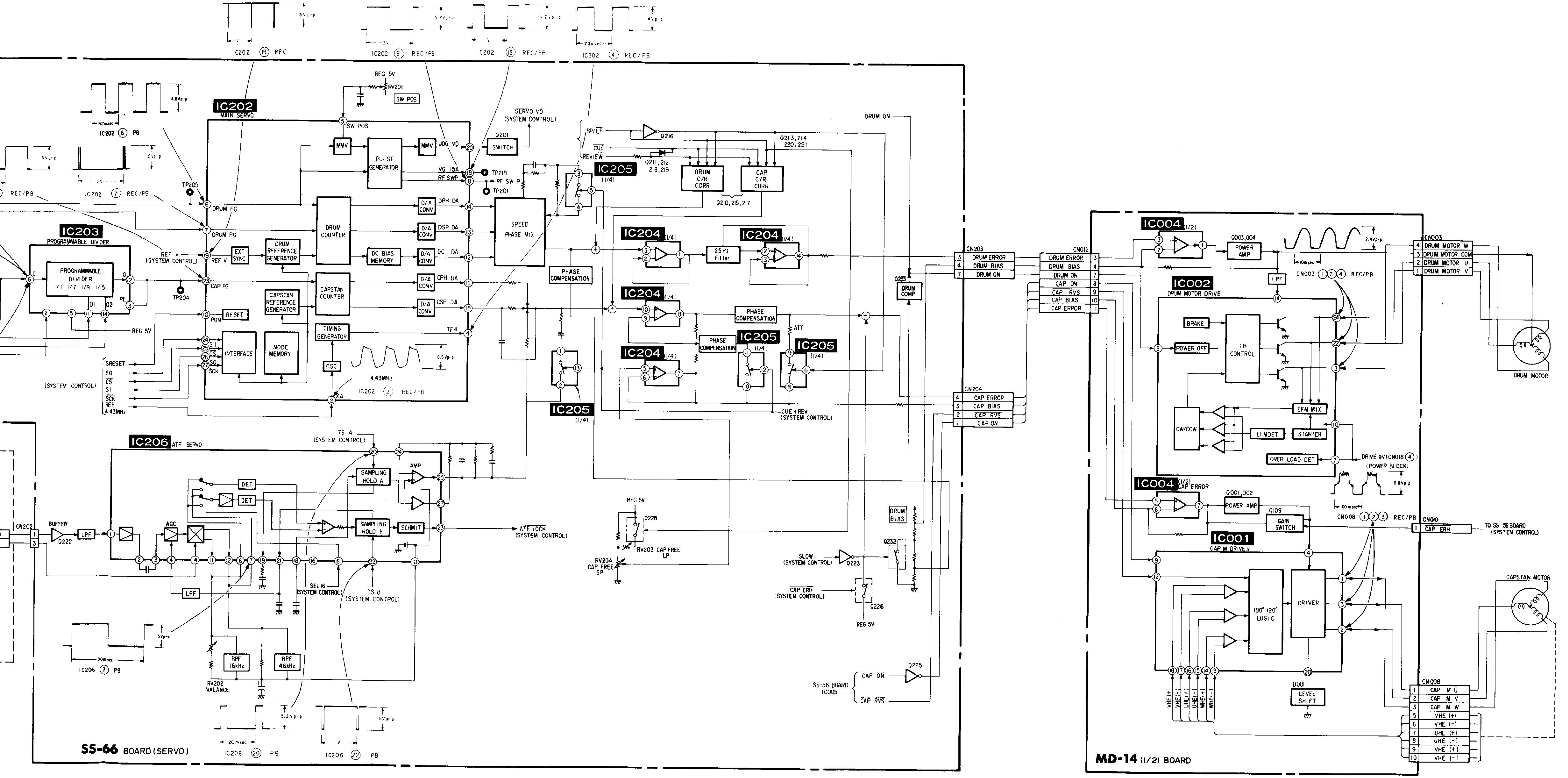

RP-25 BOARD
IC001
VIDEO HEAD 1CH
VIDEO HEAD 2CH
CN003
DUMPING
CH1 HEAD AMP
CH1 2ND RF AMP
CH2 HEAD AMP
CH2 2ND RF AMP
REG 5V
RV002 CH1 PB EQ
RV001 CH2 PB EQ
RF OUT 1CH
RF OUT 2CH
REC/PB AMP
BUFFER
SW1
SW2
SW3
AMP
6dB ATT
RF OUT
Q205,206
CN004
PB Y (VI-33BOARD)
HCHG (SYSTEM CONTROL)
EF
RV003 REC Y
CN001
REC Y (VI-33BOARD)
CH1 REC AMP
CH2 REC AMP
V-I CONV
B SW
A SW
Y VOL
Y IN
C VOL
ATF VOL
PCM VOL
TP1
RP RF SW. P (SYSTEM CONTROL)
VIDEO REC (SYSTEM CONTROL)
FLYING ERASE HEAD
ROTARY TRANS-FOMER
CN005
Q001,002
ERASE OSC
RP PB MODE (SYSTEM CONTROL)
FE ON (SYSTEM CONTROL)


0.6Vp-p
H
IC001 ③① REC
IC001 ③① PB
0.7Vp-p
IC001 ③④ PB
2.5Vp-p
IC001 ④④ REC/PB
5.17MHz
0.19Vp-p
IC003 ③⓪ REC/PB
0.45Vp-p
IC004 ①② PB
RV601 SHARPNESS
SS-66 BOARD
VI-33BOARD
VIDEO OUT (TUNER BLOCK)
PB Y (VIDEO BLOCK RP-25 BOARD)
CN002
TP002
PB Y (AFM BLOCK)
LV1 1.5MHz TRAP
Q016 BUFFER
REG 5V
CN006 EURO CONNECTOR
VIDEO OUT
TP001
VIDEO IN
REC Y (VIDEO BLOCK RP-25 BOARD)
CN003
REC AFM (AFM BLOCK)
CN008
Q011
PB 5V (Q206)
Q012,013
Q105 DE EMPHASIS
RV005 DEVIATION
Q007 BUFFER
TP004 RV006 PB Y
MAIN DE-EMPHASIS
TUNER
LINE
AGC AMP
SYNC SEP
CHROMA TRAP
Q009,Q010 SOFT LIMITTER
Q021 C/R SWITCH
COMP SYNC (SYSTEM CONTROL)
Q003,004 EQ
LPF
Q203 BUFFER
Q204 MIX AMP
RV203 REC Y
Q217 BUFFER
FL201
BPF
RV201 REC C
Q212 AMP
Q215 BUFFER
Q201,207 SWITCH
Q200 AMP
ME/MP (SYSTEM CONTROL)
RV205 REC ATF
REC ATF
IC007 ATF SERVO
6dB AMP
3dB AMP
SWITCH
AGC AMP
ATT
Q300 SP/LP SWITCH
SP/LP (SYSTEM CONTROL)
(SYSTEM CONTROL) RP PB MODE
W010
CN001
(SERVO BLOCK) PB ATF
PB PILOT
LIMITER
4.43MHz TRAP
FL200
IC004 CHROMA EMPHASIS
PB5V (Q206)
REC/PB
PB C
REC C
0.64Vp-p
IC003 ③④ REC
1Vp-p
IC003 ③⑨ PB
0.8Vp-p
IC003 ③⑨ REC
REG 5V
Q205,206 PB 5V SWITCH
VIDEO PB MODE (SYSTEM CONTROL)
IC003 ④⑧
4.43MHz
0.6Vp-p
IC003 ⑧ REC/PB
0.2μsec
IC001


IC001 ⑮ REC
IC001 ⑩ PB
IC002 ㊳ PB
IC002 ㊱ PB
IC002 ㊹ PB
IC001 ⑥ PB
IC002 ㊱ REC
IC002 ㉙ PB
IC002 ㉘ REC
IC002 ⑱ REC
IC002 ⑯ PB
IC002 ⑫ REC
IC002 ⑫ PB
IC006 ㉒ PB
IC001
Y PROCESS
IC002
COMB FILTER
IC003
CHROMA PROCESS
IC004
CHROMA EMPHASIS
IC005
DIGITAL PROCESS
IC006
JOG CHROMA PROCESS
SK-17 BOARD
DE EMPHASIS
SHARPNESS CONTROL
REC/PB SWITCH
SUB DE-EMPH
SUB PRE-EMPH
MAIN PRE EMPHASIS
HALF H SHIFT
FM MOD
CLAMP
AGC DET
MAIN DE-EMPHASIS
PB LEVEL
AGC AMP
CLAMP AC ADD
VIDEO OUT LEVEL
SYNC SEP
DOC DET
RF AGC
LIMITER
FM DEMOD
CHROMA TRAP
SOFT LIMITTER
C/R SWITCH
EQ
LPF
BUFFER
COMB FILTER
2H DELAY
REC/PB SWITCH
COMB AGC
AGC DET
AM DET
1H DELAY
AM MOD
C. AMP
CORRELATION DET
LIMITER
SWITCH
INVERT
RECY TRAP
CARRIER BALANCE
CARRIER INVERT
CARRIER CONV
375 fH VCO
AFC ID
AFC
CHROMA CONV
BURST EMPH/DE-EMPH
APC DET
ACK
SYNC DET
4.43MHz X'TAL OSC
90° SHIFT
ACC AMP
ACC DET
PEAK HOLD
SW
CHROMA INVERT
4.43MHz TRAP
ATT
BPF
LATCH
AFC ETC
INVERTER
SELECTER
90° SHIFT
PS CHI
SEPARATER
VIRS PULSE
DETECTER GATE
DELAY PULSE
APC TIME CONSTANT SWITCH
INHIBIT
6 dB
APC CORRECTION
G C A
PHASE SHIFT
MAIN SWITCH
BURST ID DET
SEQUENCE DET
SWITCH CONTROL
IIL LOGIC
CLF GENERATOR
FH VCO
S/H
3.7MHz BPF
5.7MHz BPF
PHASE SHIFT
IC005 ㉟ REC/PB
IC005 ㉝ REC/PB
IC005 ⑬ PB
IC003 ⑭ REC/PB
IC003 ㊽ REC/PB
IC003 ⑧ REC/PB
IC003 ⑯ PB
IC005 ㊳ REC/PB
IC005 ㊷ REC
IC005 ① REC/PB
IC005 ③ PB
IC005 ③ REC
IC005 ④ STILL
IC005 ⑨ REC/PB
IC005 ⑩ REC/PB
IC006 ⑧ 3.7MHz
IC006 ⑩ 5.17MHz
REC/PB
IC006 ⑮ REC/PB

3-4. SERVO BLOCK DIAGRAM


MD-14(1/2) BOARD
IC003
WAVE SHAPER
DC BIAS
DRUM
FG
PG
DRUM FG
DRUM PG
DRUM COM
CN001
CN002
CFG (B)
CFG (A)
CAPSTAN FG HEAD
CN001 ① REC/PB
1.67msec
24mVp-p
CN012
DRUM FG (X)
DRUM PG (X)
CAP FG (X)
CN203
CN204
IC203
PROGRAMMABLE DIVIDER
1/1 1/7 1/9 1/15
IC203 ⑥ REC/PB
IC203 ⑥ CUE
IC203 ⑥ REV
1.49msec
160μsec
220μsec
5Vp-p
4Vp-p
4.8Vp-p
IC202 ⑥ PB
IC202 ㉓ REC/PB
IC202 ⑦ REC/PB
IC202 ⑲ REC
IC202 ⑧ REC/PB
IC202 ⑯ REC/PB
IC202 ④ REC/PB
IC202 ② REC/PB
CAP FG
(SYSTEM CONTROL)
D1
D2
D3
REG 5V
REF V (SYSTEM CONTROL)
TP205
TP204
IC202
MAIN SERVO
SW POS
MMV
PULSE GENERATOR
DRUM COUNTER
CAPSTAN COUNTER
EXT SYNC
DRUM REFERENCE GENERATOR
CAPSTAN REFERENCE GENERATOR
TIMING GENERATOR
DC BIAS MEMORY
D/A CONV
RESET
INTERFACE
MODE MEMORY
OSC
4.43MHz
0.5Vp-p
SRESET
SO
CS
SI
SCK
REF 4.43MHz
JOG VD
VG 15A
RF SWP
DPH DA
DSP DA
DC DA
CPH DA
CSP DA
TF4
TP218
TP201
RF SW P
SERVO VD (SYSTEM CONTROL)
Q201
SWITCH
RV201
SW POS
SPEED PHASE MIX
PHASE COMPENSATION
IC204 (1/4)
IC205 (1/4)
25Hz Filter
SP/LP
CUE
REVIEW
Q216
Q211, 212, 218, 219
DRUM C/R CORR
CAP C/R CORR
Q210, 215, 217
Q213, 214, 220, 221
DRUM ON
Q233
DRUM COMP
ATT
CUE+REV (SYSTEM CONTROL)
DRUM
VIDEO HEAD CH1
VIDEO HEAD CH2
CH 1 (X)
CH 2 (X)
RP-25 BOARD
IC001
CH1 HEAD AMP
CH2 HEAD AMP
CH1 REC AMP
CH2 REC AMP
VIDEO BLOCK
VI-33 BOARD
PB Y (VIDEO BLOCK)
PB Y (AFM BLOCK)
IC006
AGC AMP
ATT
ATF PILOT
CN004
PB Y (Y)
CN001
REC Y (X)
CN002
PB Y
CN003
REC Y
PB ATF (X)
PB PILOT
CN202
BUFFER
Q222
LPF
IC206 ATF SERVO
AGC
DET
SAMPLING HOLD A
SAMPLING HOLD B
AMP
SCHMIT
TS A (SYSTEM CONTROL)
TS B (SYSTEM CONTROL)
SEL16 (SYSTEM CONTROL)
ATF LOCK (SYSTEM CONTROL)
BPF 16kHz
BPF 46kHz
RV202 VALANCE
IC206 ⑦ PB
IC206 ⑳ PB
IC206 ㉒ PB
20msec
5.2Vp-p
SS-66 BOARD (SERVO)
REG 5V
Q228
RV203 CAP FREE LP
RV204 CAP FREE SP
DRUM BIAS
Q232
SLOW (SYSTEM CONTROL)
Q223
CAP ERH (SYSTEM CONTROL)
Q226
REG 5V
SS-56 BOARD IC005
CAP ON
CAP RVS
Q225


IC202 ⑲ REC
IC202 ⑧ REC/PB
IC202 ⑱ REC/PB
IC202 ④ REC/PB
IC202 ⑥ PB
IC202 ⑦ REC/PB
IC202 ② REC/PB
IC202
MAIN SERVO
REG 5V
RV201
SW POS
SERVO VD (SYSTEM CONTROL)
MMV
PULSE GENERATOR
JOG VD
Q201 SWITCH
VG 15A
RF SWP
TP218
RF SW P
TP201
TP205
DRUM FG
DRUM PG
DRUM COUNTER
D/A CONV
DPH DA
DSP DA
DC DA
CPH DA
CSP DA
DC BIAS MEMORY
SPEED PHASE MIX
IC203
PROGRAMMABLE DIVIDER
1/1 1/7 1/9 1/15
REF V (SYSTEM CONTROL)
EXT SYNC
DRUM REFERENCE GENERATOR
CAP FG
TP204
CAPSTAN REFERENCE GENERATOR
CAPSTAN COUNTER
RESET
PON
REG 5V
TIMING GENERATOR
TF4
INTERFACE
MODE MEMORY
OSC
4.43MHz
SRESET
SO
CS
SI
SCK
REF 4.43MHz
(SYSTEM CONTROL)
SP/LP
CUE
REVIEW
Q216
Q211, 212, 218, 219
DRUM C/R CORR
CAP C/R CORR
Q213, 214, 220, 221
Q210, 215, 217
IC205 (1/4)
IC204 (1/4)
25Hz Filter
PHASE COMPENSATION
ATT
CUE + REV (SYSTEM CONTROL)
DRUM ON
Q233 DRUM COMP
CN203
DRUM ERROR
DRUM BIAS
DRUM ON
CN204
CAP ERROR
CAP BIAS
CAP RVS
CAP ON
IC206 ATF SERVO
TS A (SYSTEM CONTROL)
SAMPLING HOLD A
SAMPLING HOLD B
AMP
DET
SCHMIT
ATF LOCK (SYSTEM CONTROL)
CN202
BUFFER Q222
LPF
AGC
SEL16 (SYSTEM CONTROL)
TS B (SYSTEM CONTROL)
BPF 16kHz
BPF 46kHz
RV202 VALANCE
IC206 ⑦ PB
IC206 ⑳ PB
IC206 ㉒ PB
REG 5V
Q228
RV203 CAP FREE LP
RV204 CAP FREE SP
DRUM BIAS
SLOW (SYSTEM CONTROL)
Q223
Q232
CAP ERH (SYSTEM CONTROL)
Q226
REG 5V
SS-56 BOARD IC005
CAP ON
CAP RVS
Q225
SS-66 BOARD (SERVO)
CN012
DRUM ERROR
DRUM BIAS
DRUM ON
CAP ON
CAP RVS
CAP BIAS
CAP ERROR
IC004 (1/2)
Q003, 004 POWER AMP
LPF
CN003 ①②④ REC/PB
IC002
DRUM MOTOR DRIVE
BRAKE
POWER OFF
IB CONTROL
CW/CCW
EFMDET
STARTER
EFM MIX
OVER LOAD DET
DRIVE 9V (CN018 ④) (POWER BLOCK)
CN003
DRUM MOTOR W
DRUM MOTOR COM
DRUM MOTOR U
DRUM MOTOR V
DRUM MOTOR
IC004 (1/2) CAP ERROR
Q001, 002 POWER AMP
Q109 GAIN SWITCH
CN008 ①②③ REC/PB
CN010
CAP ERH
TO SS-56 BOARD (SYSTEM CONTROL)
IC001
CAP M DRIVER
180° 120° LOGIC
DRIVER
D001 LEVEL SHIFT
VHE(+) VHE(−) UHE(+) UHE(−) WHE(+) WHE(−)
CAPSTAN MOTOR
CN008
CAP M U
CAP M V
CAP M W
VHE (+)
VHE (−)
UHE (+)
UHE (−)
VHE (+)
VHE (−)
MD-14 (1/2) BOARD

3-5. SYSTEM CONTROL CIRCUIT AND RP AMP BLOCK INTERFACE

SIGNAL	I/O	Pin No.	STOP	PB	REC	FF	REW	CUE	REV	PB PAUSE	REC PAUSE	LOADING	EJECT
$\overline{\text{FEON}}$	O	Q007 collector	H	H	L	H	H	H	H	H	H	H	H
RP PB MODE	O	IC001 44pin	H	H	L	H	H	H	H	H	H	H	H
VIDEO REC	O	Q008 collector	L	L	H	L	L	L	L	L	L	L	L

3-6. SYSTEM CONTROL CIRCUIT AND VIDEO BLOCK INTERFACE

SIGNAL	I/O	Pin No.	STOP	PB	REC	FF	REW	CUE	REV	PB PAUSE	REC PAUSE	LOADING	EJECT
VIDEO MUTE	O	IC005 11pin	L	L	L	L	L	L	L	L	L	L	L
JOG	O	IC005 4pin	L	L	L	L	L	H	H	H	L	L	L
VIDEO PB	O	IC005 6pin	L	H	L	L	L	H	H	H	L	L	L
SP/$\overline{\text{LP}}$	O	IC001 18pin	Depending on SP/LP SW	Result of automatic discrimination	Depending on SP/LP SW which is activated immediately before.	H	H	Holds PB mode which has been activated immediately before.	←	←	Depending on SP/LP SW which is activated immediately before.	H	H
SRESET	O	Q025 collector	L	L	L	L	L	L	L	L	L	L	L
RP PB MODE	O	IC001 44pin	H	H	L	H	H	H	H	H	H	H	H

3-7. SYSTEM CONTROL CIRCUIT AND SERVO

SIGNAL	I/O	Pin No.	STOP	P
SEL 1	O	IC001 12pin	H	*
SEL 2	O	IC001 13pin	H	*
SRESET	O	IC001 10pin	L	L
TSA	O	IC001 14pin	L	*
TSB	O	IC001 15pin	L	*
$\overline{\text{CAP ON}}$	O	IC001 50pin	H	L
CAP $\overline{\text{FWD}}$	O	IC001 51pin	H	H
$\overline{\text{DRM ON}}$	O	IC001 53pin	H	L
$\overline{\text{CAP FG}}$	I	IC001 40pin	Unprovided	Provi
$\overline{\text{SERVO CS}}$	O	IC001 37pin		
SO	O	IC001 34pin	*3	
SI	I	IC001 36pin		
$\overline{\text{SCK}}$	O	IC001 33pin		
RF SWP	I	IC001 48/49pin	Unprovided	Provi
SP/$\overline{\text{LP}}$	O	IC001 18pin	Depending on SP/LP SW	Result of automati discrimin
$\overline{\text{SLOW}}$	O	IC001 1pin	H	H
$\overline{\text{CUE}}$	O	IC001 2pin	H	H
$\overline{\text{REV}}$	O	IC001 3pin	H	H
CFG 2	O	IC001 5pin	L	L
CFG 4	O	IC001 6pin	L	L
CFG 8	O	IC001 7pin	L	L
$\overline{\text{JOG VD}}$	O	IC001 45pin	H	H
$\overline{\text{CAP ERH}}$	O	IC001 52pin	H	H
INT	I	IC001 59pin	L	⊓⊔⊓
SEL 16/$\overline{\text{47}}$	O	IC001 63pin	L	⊓⊔⊓

EV	PB PAUSE	REC PAUSE	LOADING	EJECT
H	H	H	H	H
H	H	H	H	H
L	L	L	L	L

EV	PB PAUSE	REC PAUSE	LOADING	EJECT
L	L	L	L	L
H	H	L	L	L
H	H	L	L	L
←	←	Depending on SP/LP SW which is activated immediately before.	H	H
L	L	L	L	L
H	H	H	H	H

3-7. SYSTEM CONTROL CIRCUIT AND SERVO CIRCUIT INTERFACE

SIGNAL	MODE I/O	Pin No.	STOP	PB	REC	FF	REW	CUE	REV	PB PAUSE	REC PAUSE	LOADING	EJECT
SEL 1	O	IC001 12pin	H	*1	*1	H	H	*1	*1	H	H	H	H
SEL 2	O	IC001 13pin	H	*1	*1	H	H	*1	*1	*1	H	H	H
SRESET	O	IC001 10pin	L	L	L	L	L	L	L	L	L	L	L
TSA	O	IC001 14pin	L	*1	L	L	L	L	L	L	L	L	L
TSB	O	IC001 15pin	L	*1	L	L	L	L	L	*1	L	L	L
$\overline{\text{CAP ON}}$	O	IC001 50pin	H	L	L	L	L	L	L	L	H	L	L
CAP $\overline{\text{FWD}}$	O	IC001 51pin	H	H	H	H	L	H	L	H	H	L	H
$\overline{\text{DRM ON}}$	O	IC001 53pin	H	L	L	L	L	L	L	L	L	L	L
$\overline{\text{CAP FG}}$	I	IC001 40pin	Unprovided	Provided	Provided	Provided	Provided	Provided	Provided	Unprovided	Unprovided	Provided	Provided
$\overline{\text{SERVO CS}}$	O	IC001 37pin											
SO	O	IC001 34pin	*3										
SI	I	IC001 36pin											
$\overline{\text{SCK}}$	O	IC001 33pin											
RF SWP	I	IC001 48/49pin	Unprovided	Provided	Provided	Provided	Provided	Provided	Provided	Provided	Provided	Provided	Provided
SP/$\overline{\text{LP}}$	O	IC001 18pin	Depending on SP/LP SW	Result of automatic discrimination.	Depending on SP/LP SW which is activated immediately before.	H	H	Holds PB mode which has been activated immediately before.	←	←	Depending on SP/LP SW which is activated immediately before.	H	H
$\overline{\text{SLOW}}$	O	IC001 1pin	H	H	H	H	H	H	H	L	H	H	H
$\overline{\text{CUE}}$	O	IC001 2pin	H	H	H	H	H	L	H	H	H	H	H
$\overline{\text{REV}}$	O	IC001 3pin	H	H	H	H	H	H	L	H	H	H	H
CFG 2	O	IC001 5pin	L	L	L	H	H	L	H	L	L	H	H
CFG 4	O	IC001 6pin	L	L	L	L	L	L	H	L	L	L	L
CFG 8	O	IC001 7pin	L	L	L	H	H	H	L	L	L	L	H
$\overline{\text{JOG VD}}$	O	IC001 45pin	H	H	H	H	H	⊔⊔⊔	⊔⊔⊔	⊔⊔⊔	H	H	H
$\overline{\text{CAP ERH}}$	O	IC001 52pin	H	H	H	H	H	H	H	H	H	H	H
INT	I	IC001 59pin	L	⊓⊓⊓	⊓⊓⊓	⊓⊓⊓	⊓⊓⊓	⊓⊓⊓	⊓⊓⊓	⊓⊓⊓	⊓⊓⊓	⊓⊓⊓	⊓⊓⊓
SEL 16/$\overline{\text{47}}$	O	IC001 63pin	L	⊓⊓⊓	L	L	L	⊓⊓⊓	⊓⊓⊓	H	H	L	L

***1** Changes in accordance with ATF sequence

***2** Changes in accordance with ATF tracking

***3** Serial digital input/output control signal and data signal against digital servo.

***4** At rise up/rise up and tape top/end of interruption input of RF SW pulses, pulse of "L" active is input.

3-8. SYSTEM CONTROL CIRCUIT AND MECHANISM BLOCK INTERFACE

SIGNAL	I/O	Pin No.	STOP	PB	REC	FF	REW	CUE	REV	PB PAUSE	REC PAUSE	LOADING	EJECT
TAPE TOP	I	Q013 base	←					*1					→
TAPE END	I	Q015 base	←					*2					→
LOAD CW	O	IC003 5pin	L	L	L	L	L	L	L	L	L	H	L
LOAD CCW	O	IC003 8pin	L	L	L	L	L	L	L	L	L	L	H
CONT CW	O	IC002 5pin	L	L	L	L	L	L	L	L	L	L	L
CONT CCW	O	IC002 8pin	L	L	L	L	L	L	L	L	L	L	L
$\overline{\text{START}}$	O	Q019 collector	H	H	H	H	H	H	H	H	H	H	H
$\overline{\text{HOLD}}$	O	Q017 collector	H	H	H	L	L	H	L	H	H	L	L

*1 "H" at tape top
*2 "H" at tape end

3-9. SYSTEM CONTROL CIRCUIT AND AUDIO CIRCUIT INTERFACE

SIGNAL	I/O	Pin No.	STOP	PB	REC	FF	REW	CUE	REV	PB PAUSE	REC PAUSE	LOADING	EJECT
LINE MUTE	O	Q31 collector	L	L	L	L	L	H	H	H	L	L	L
$\overline{\text{AUDIO PB}}$	O	IC005 3pin	H	L	H	H	H	L	L	L	H	H	H

3-10. MODE CONTROL CIRCUIT AND TIMER TUNER BLOCK INTERFA

SIGNAL	I/O	Pin No.	STOP	PB	REC	FF	REW
$\overline{\text{5016CS}}$	O	IC002 48pin					
$\overline{\text{5034RST}}$	I	IC002 10pin					
S0	O	IC002 21pin	*1				
SI	I	IC002 23pin					
$\overline{\text{SCK}}$	O	IC002 20pin					

PB PAUSE	REC PAUSE	LOADING	EJECT
			→
			→
L	L	H	L
L	L	L	H
L	L	L	L
L	L	L	L
H	H	H	H
H	H	L	L

*1 "H" at tape top
*2 "H" at tape end

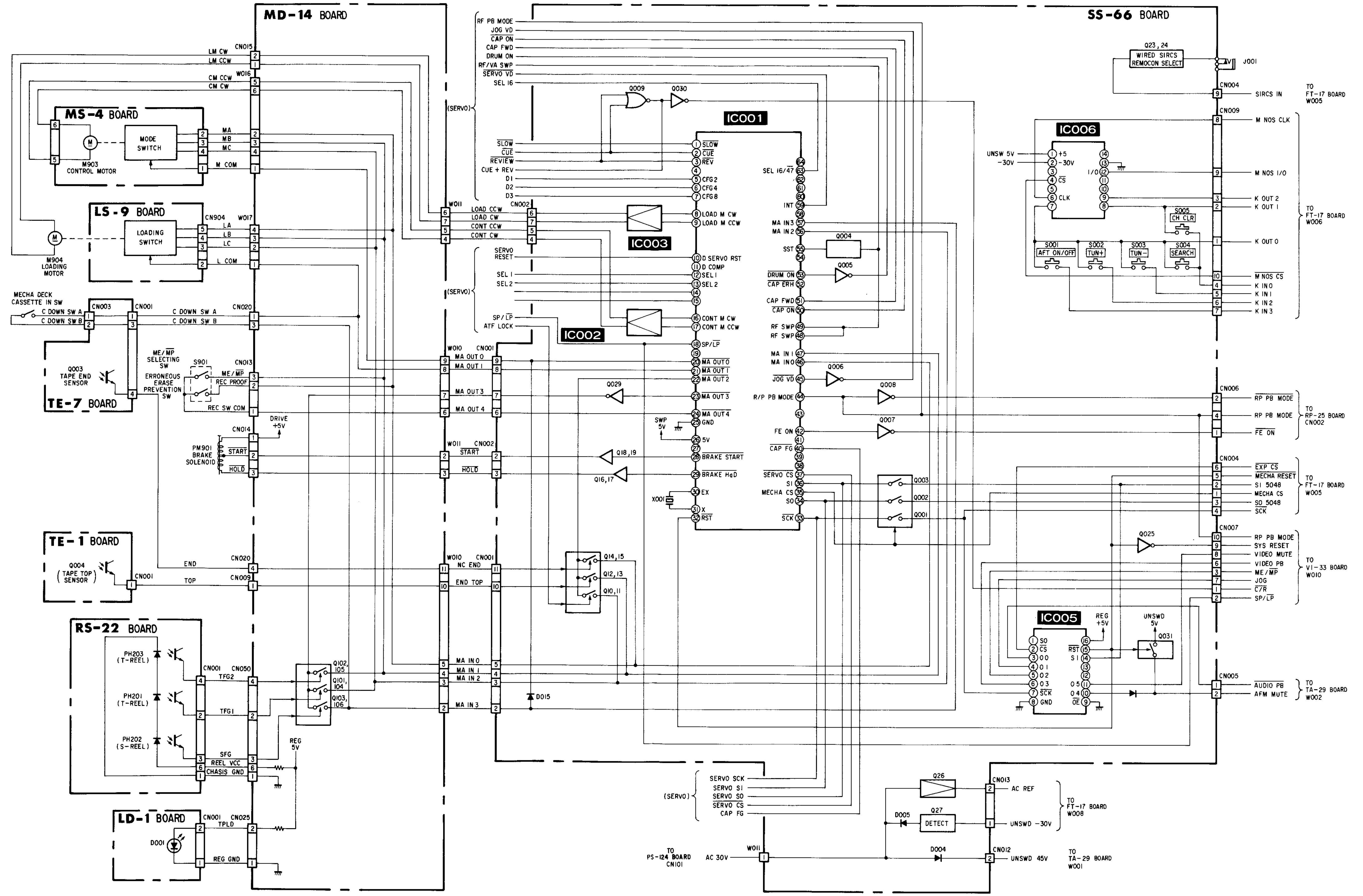
PB PAUSE	REC PAUSE	LOADING	EJECT
H	L	L	L
L	H	H	H

3-10. MODE CONTROL CIRCUIT AND TIMER TUNER BLOCK INTERFACE

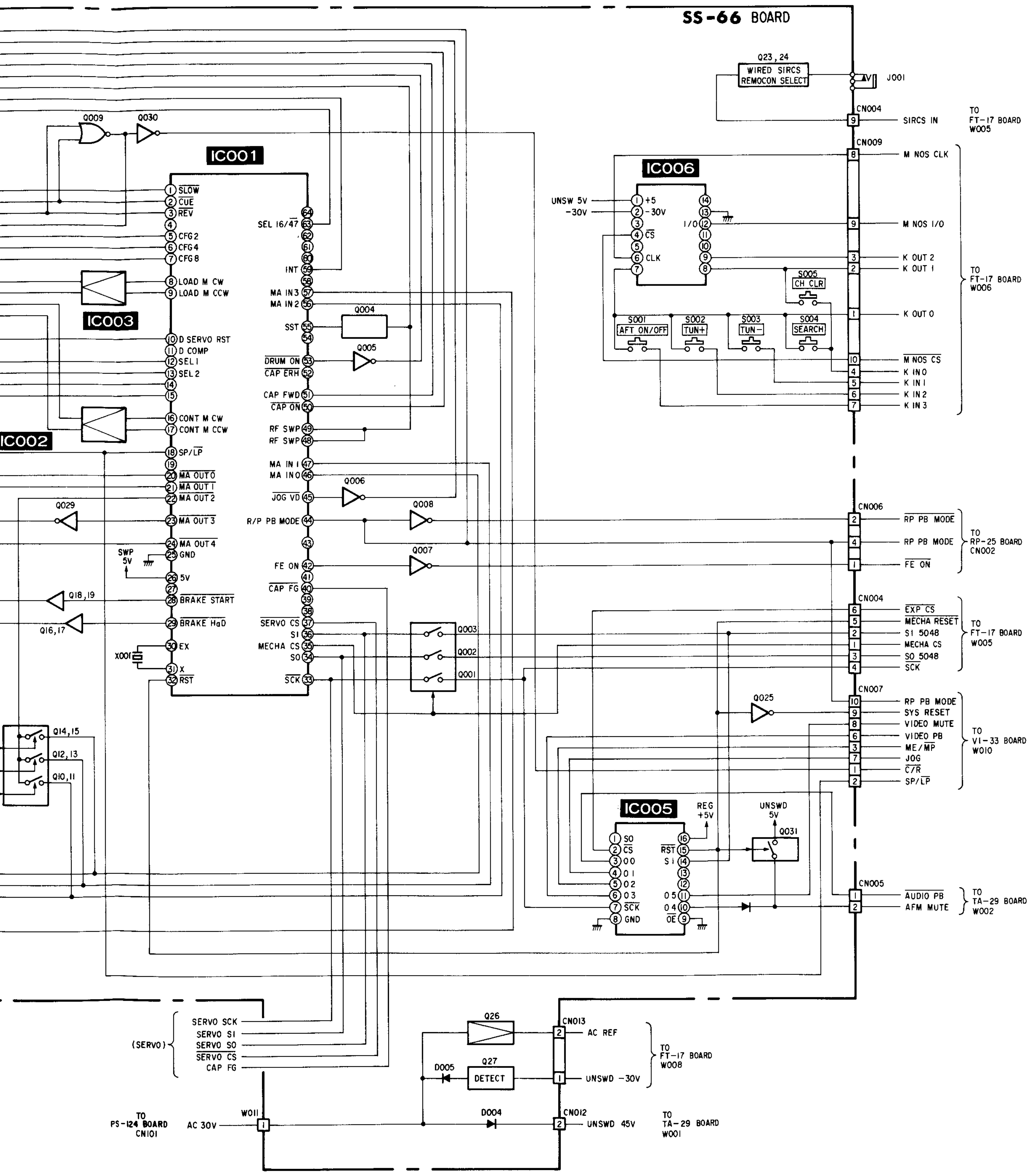
SIGNAL	MODE I/O	Pin No.	STOP	PB	REC	FF	REW	CUE	REV	PB PAUSE	REC PAUSE	LOADING	EJECT	DUB	DUB PAUSE
$\overline{5016CS}$	O	IC002 48pin													
$\overline{5034RST}$	I	IC002 10pin													
SO	O	IC002 21pin	*1												
SI	I	IC002 23pin													
$\overline{SCK}$	O	IC002 20pin													

*1 Serial data transport control signal and data signal of mode control microcomputer and timer/tuner microcomputer.

3-11. SYSTEM CONTROL BLOCK DIAGRAM

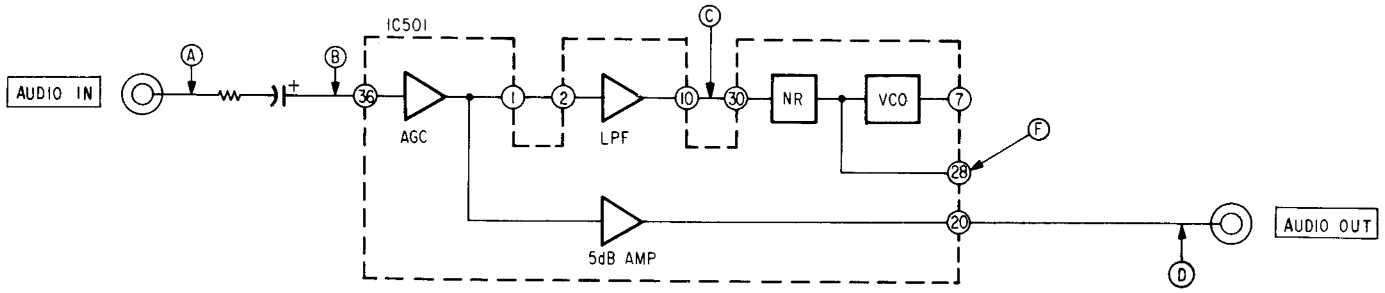


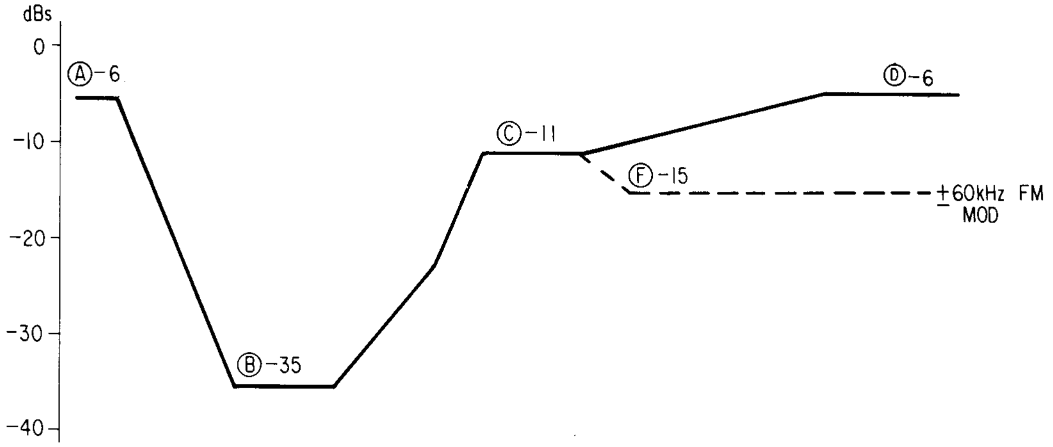
MD-14 BOARD
SS-66 BOARD
MS-4 BOARD
M903 CONTROL MOTOR
MODE SWITCH
LS-9 BOARD
M904 LOADING MOTOR
LOADING SWITCH
MECHA DECK CASSETTE IN SW
C DOWN SW A
C DOWN SW B
TE-7 BOARD
Q003 TAPE END SENSOR
ME/MP SELECTING SW
ERRONEOUS ERASE PREVENTION SW
S901
ME/MP
REC PROOF
REC SW COM
DRIVE +5V
PM901 BRAKE SOLENOID
START
HOLD
TE-1 BOARD
Q004 (TAPE TOP SENSOR)
END
TOP
RS-22 BOARD
PH203 (T-REEL)
PH201 (T-REEL)
PH202 (S-REEL)
TFG2
TFG1
SFG
REEL VCC
CHASIS GND
REG 5V
LD-1 BOARD
D001
TPLD
REG GND
LM CW
LM CCW
CM CCW
CM CW
MA
MB
MC
M COM
LA
LB
LC
L COM
CN015
W016
CN904
W017
CN003
CN001
CN020
CN013
CN014
CN009
CN050
CN025
W011
W010
CN002
LOAD CCW
LOAD CW
CONT CCW
CONT CW
MA OUT 0
MA OUT 1
MA OUT 3
MA OUT 4
NC END
END TOP
MA IN 0
MA IN 1
MA IN 2
MA IN 3
Q102, 105
Q101, 104
Q103, 106
D015
RF PB MODE
JOG VD
CAP ON
CAP FWD
DRUM ON
RF/VA SWP
SERVO VD
SEL 16
(SERVO)
SLOW
CUE
REVIEW
CUE + REV
D1
D2
D3
SERVO RESET
SEL 1
SEL 2
SP/LP
ATF LOCK
Q009
Q030
IC001
IC002
IC003
SLOW
CUE
REV
CFG 2
CFG 4
CFG 8
LOAD M CW
LOAD M CCW
D SERVO RST
D COMP
SEL 1
SEL 2
CONT M CW
CONT M CCW
SP/LP
MA OUT 0
MA OUT 1
MA OUT 2
MA OUT 3
MA OUT 4
GND
5V
SWP 5V
BRAKE START
BRAKE HoD
EX
X
RST
X001
SEL 16/47
INT
MA IN 3
MA IN 2
SST
DRUM ON
CAP ERH
CAP FWD
CAP ON
RF SWP
RF SWP
MA IN 1
MA IN 0
JOG VD
R/P PB MODE
FE ON
CAP FG
SERVO CS
SI
MECHA CS
SO
SCK
Q004
Q005
Q006
Q007
Q008
Q029
Q18, 19
Q16, 17
Q14, 15
Q12, 13
Q10, 11
Q003
Q002
Q001
Q025
Q23, 24 WIRED SIRCS REMOCON SELECT
J001
CN004
SIRCS IN
TO FT-17 BOARD W005
CN009
M NOS CLK
M NOS I/O
K OUT 2
K OUT 1
K OUT 0
M NOS CS
K IN 0
K IN 1
K IN 2
K IN 3
TO FT-17 BOARD W006
IC006
UNSW 5V
-30V
+5
-30V
CS
CLK
I/O
S005 CH CLR
S001 AFT ON/OFF
S002 TUN+
S003 TUN−
S004 SEARCH
CN006
RP PB MODE
RP PB MODE
FE ON
TO RP-25 BOARD CN002
CN004
EXP CS
MECHA RESET
SI 5048
MECHA CS
SO 5048
SCK
TO FT-17 BOARD W005
CN007
RP PB MODE
SYS RESET
VIDEO MUTE
VIDEO PB
ME/MP
JOG
C/R
SP/LP
TO VI-33 BOARD W010
IC005
REG +5V
UNSWD 5V
Q031
SO
CS
O0
O1
O2
O3
SCK
GND
RST
SI
O5
O4
OE
CN005
AUDIO PB
AFM MUTE
TO TA-29 BOARD W002
SERVO SCK
SERVO SI
SERVO SO
SERVO CS
CAP FG
(SERVO)
Q26
Q27 DETECT
D005
D004
CN013
AC REF
UNSWD −30V
TO FT-17 BOARD W008
CN012
UNSWD 45V
TO TA-29 BOARD W001
W011
AC 30V
TO PS-124 BOARD CN101


SS-66 BOARD
IC001
IC002
IC003
IC005
IC006
Q009
Q030
Q23, 24
WIRED SIRCS REMOCON SELECT
J001
CN004
SIRCS IN
TO FT-17 BOARD W005
CN009
M NOS CLK
M NOS I/O
K OUT 2
K OUT 1
K OUT 0
M NOS CS
K IN 0
K IN 1
K IN 2
K IN 3
TO FT-17 BOARD W006
UNSW 5V
-30V
S001 AFT ON/OFF
S002 TUN+
S003 TUN-
S004 SEARCH
S005 CH CLR
SLOW
CUE
REV
CFG 2
CFG 4
CFG 8
LOAD M CW
LOAD M CCW
D SERVO RST
D COMP
SEL 1
SEL 2
CONT M CW
CONT M CCW
SP/LP
MA OUT 0
MA OUT 1
MA OUT 2
MA OUT 3
MA OUT 4
GND
5V
BRAKE START
BRAKE HaD
EX
X
RST
SWP 5V
Q029
Q18, 19
Q16, 17
X001
SEL 16/47
INT
MA IN 3
MA IN 2
SST
Q004
Q005
DRUM ON
CAP ERH
CAP FWD
CAP ON
RF SWP
MA IN 1
MA IN 0
JOG VD
Q006
Q008
R/P PB MODE
FE ON
Q007
CAP FG
SERVO CS
SI
MECHA CS
SO
SCK
Q003
Q002
Q001
CN006
RP PB MODE
FE ON
TO RP-25 BOARD CN002
CN004
EXP CS
MECHA RESET
SI 5048
MECHA CS
SO 5048
SCK
TO FT-17 BOARD W005
Q025
CN007
RP PB MODE
SYS RESET
VIDEO MUTE
VIDEO PB
ME/MP
JOG
C/R
SP/LP
TO VI-33 BOARD W010
Q14, 15
Q12, 13
Q10, 11
REG +5V
UNSWD 5V
Q031
SO
CS
O0
O1
O2
O3
SCK
GND
RST
SI
O5
O4
OE
CN005
AUDIO PB
AFM MUTE
TO TA-29 BOARD W002
(SERVO)
SERVO SCK
SERVO SI
SERVO SO
SERVO CS
CAP FG
Q26
Q27
DETECT
D005
D004
CN013
AC REF
UNSWD -30V
TO FT-17 BOARD W008
CN012
UNSWD 45V
TO TA-29 BOARD W001
W011
AC 30V
TO PS-124 BOARD CN101

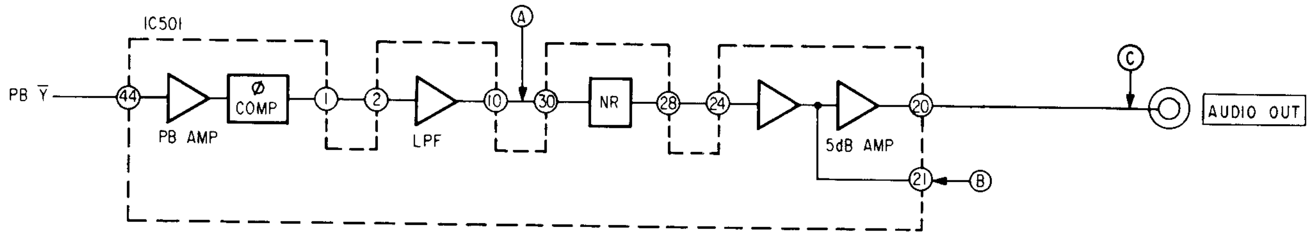
3-12. AUDIO LEVEL DIAGRAM

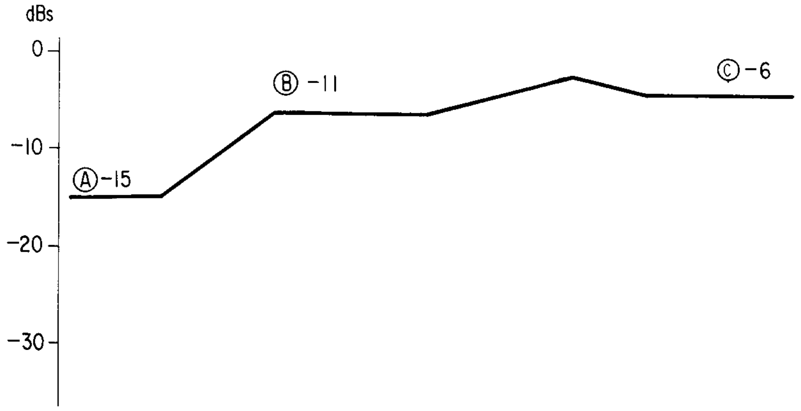
REC


IC501
AUDIO IN
Ⓐ
Ⓑ
Ⓒ
Ⓓ
Ⓕ
AGC
LPF
NR
VCO
5dB AMP
AUDIO OUT
36
1
2
10
30
7
28
20

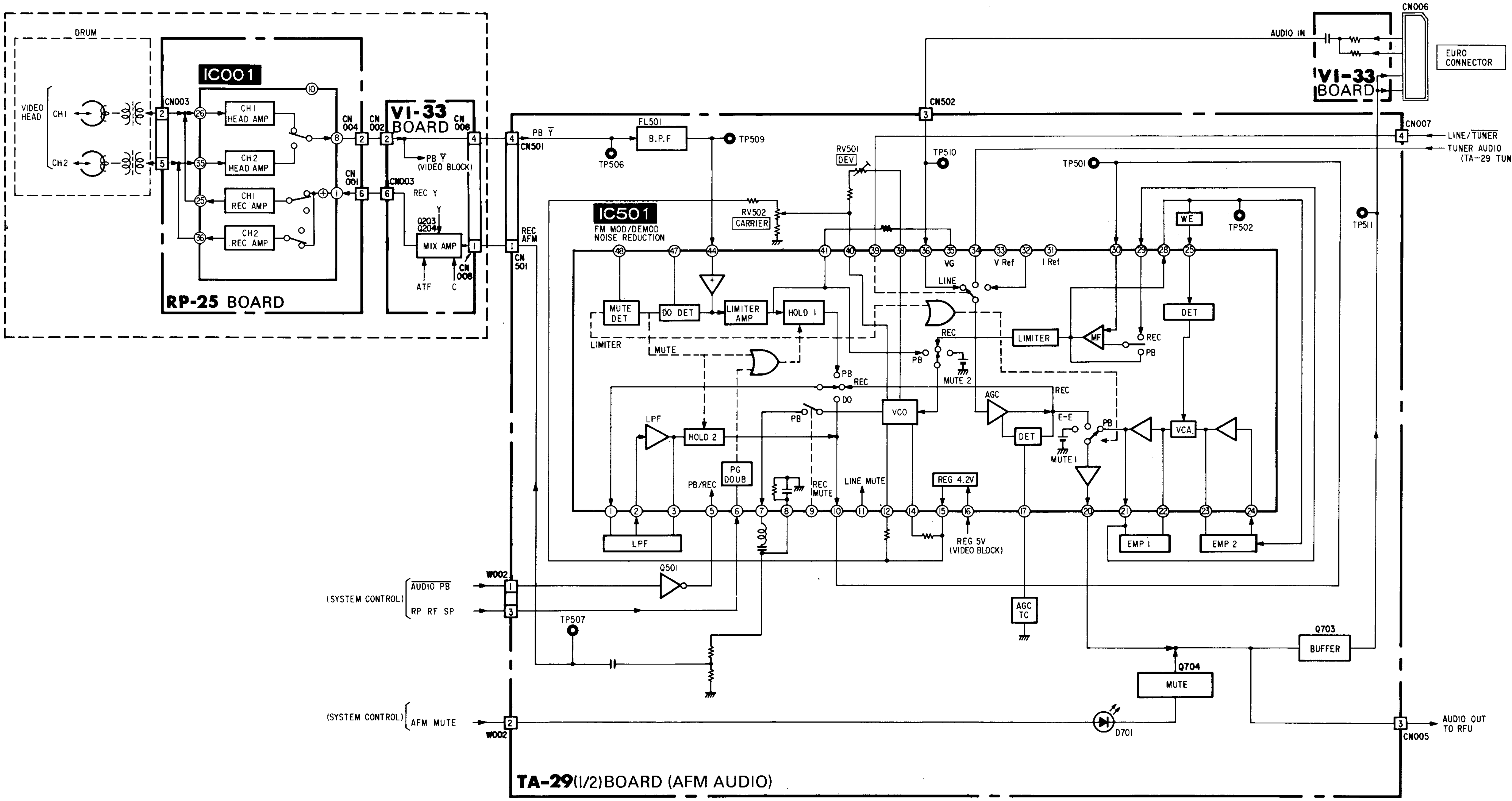


PB

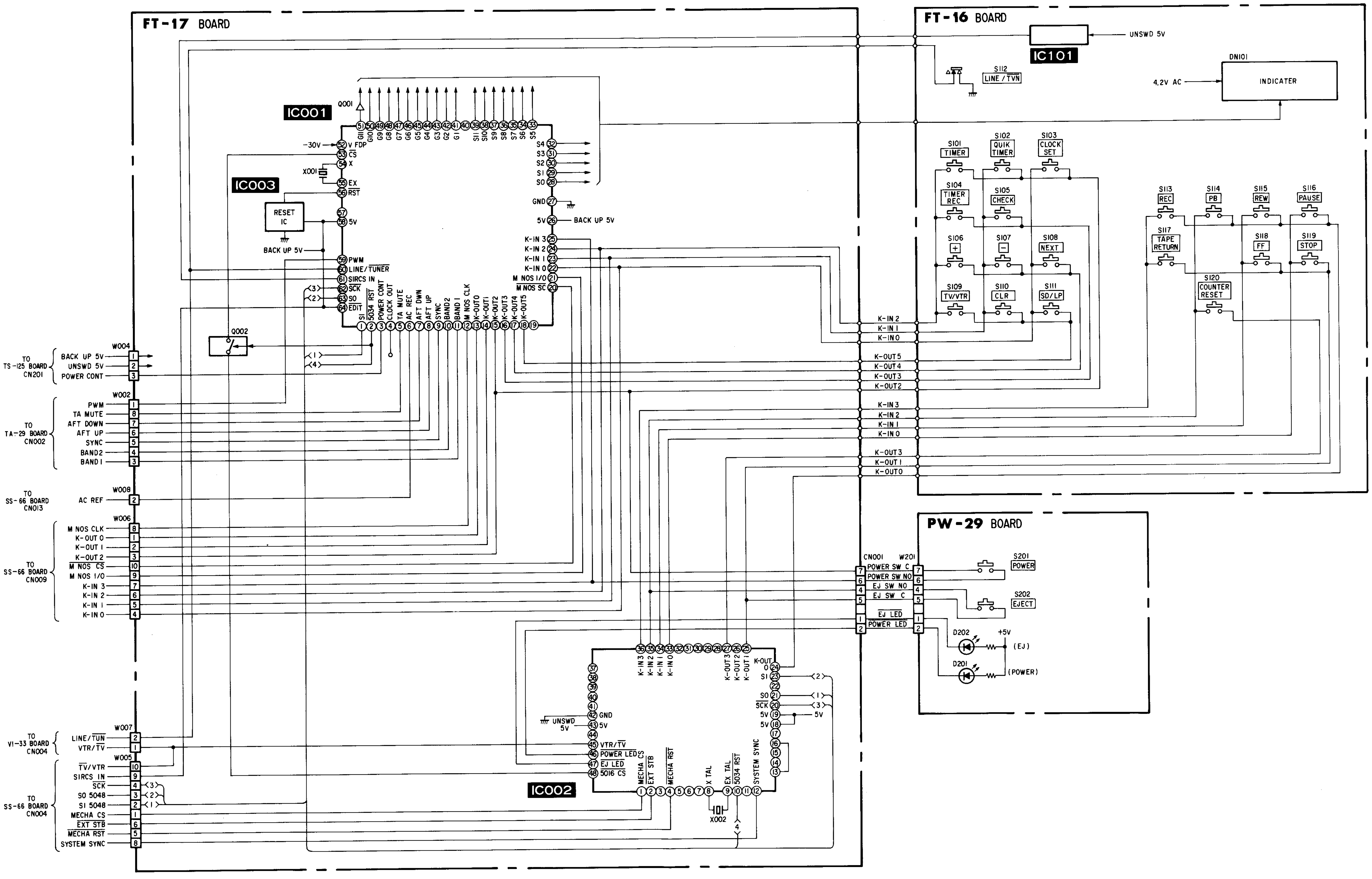

IC501
PB Y
PB AMP
Ø COMP
LPF
NR
5dB AMP
AUDIO OUT
Ⓐ
Ⓑ
Ⓒ
44
1
2
10
30
28
24
20
21



3-13. AUDIO BLOCK DIAGRAM

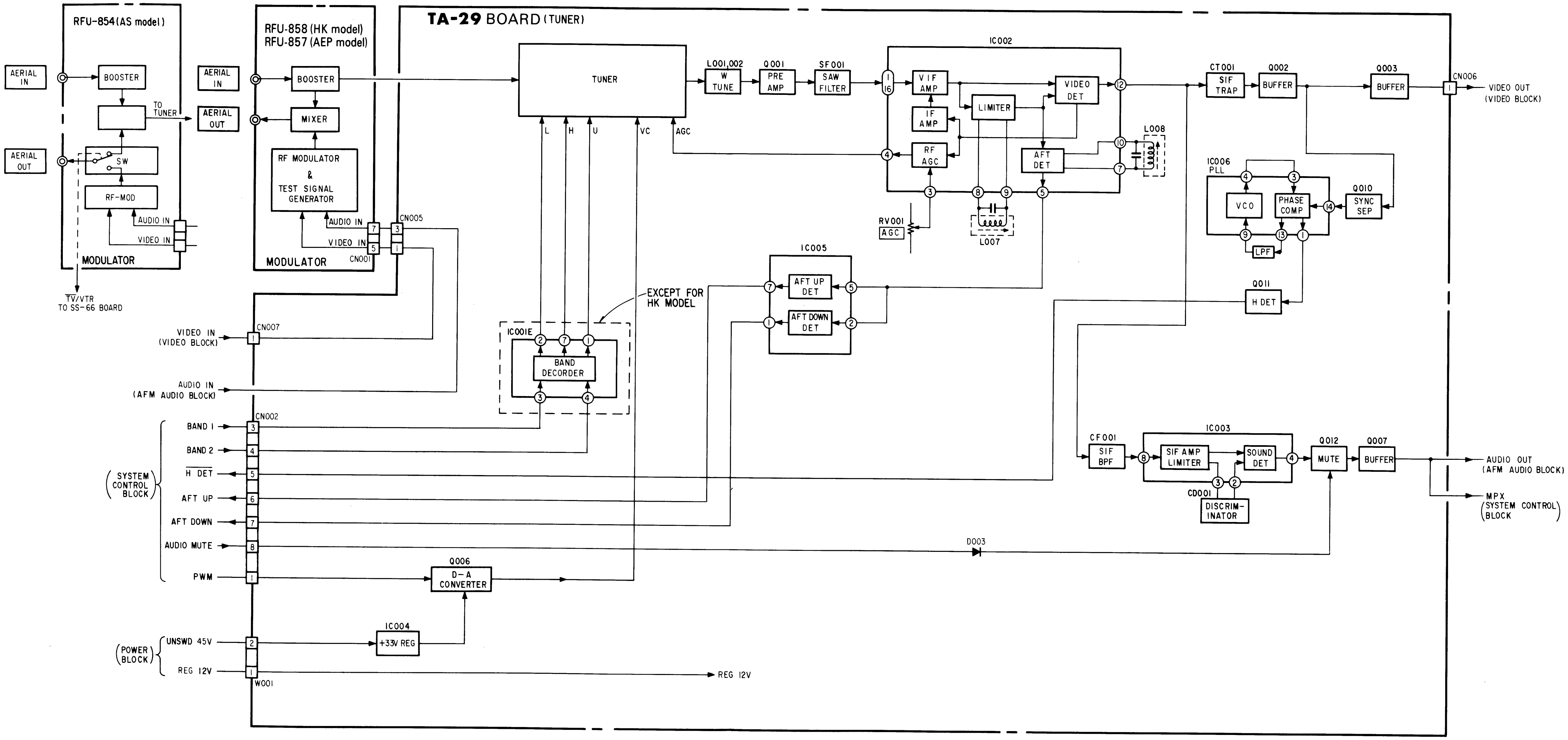

DRUM
VIDEO HEAD
CH1
CH2
IC001
CN003
CH1 HEAD AMP
CH2 HEAD AMP
CH1 REC AMP
CH2 REC AMP
RP-25 BOARD
CN 004
CN 002
CN 001
VI-33 BOARD
CN 008
CN003
PB Y (VIDEO BLOCK)
REC Y
Q203 Q204
MIX AMP
ATF
C
CN501
REC AFM
CN 501
PB Y
FL501
B.P.F
TP506
TP509
IC501
FM MOD/DEMOD NOISE REDUCTION
RV502 CARRIER
RV501 DEV
TP510
CN502
TP501
TP502
TP511
WE
VG
V Ref
I Ref
LINE
MUTE DET
DO DET
LIMITER AMP
HOLD 1
LIMITER
MUTE
REC
PB
DO
MUTE 2
LIMITER
MF
DET
AGC
VCO
E-E
MUTE 1
VCA
LPF
HOLD 2
PG DOUB
PB/REC
REC MUTE
LINE MUTE
REG 4.2V
REG 5V (VIDEO BLOCK)
EMP 1
EMP 2
LPF
Q501
AGC TC
(SYSTEM CONTROL)
AUDIO PB
RP RF SP
W002
TP507
AFM MUTE
D701
Q704
MUTE
Q703
BUFFER
CN005
AUDIO OUT TO RFU
CN007
LINE/TUNER
TUNER AUDIO (TA-29 TUNER BLOCK)
CN006
AUDIO IN
EURO CONNECTOR
VI-33 BOARD
TA-29(1/2)BOARD (AFM AUDIO)

3-14. TIMER BLOCK DIAGRAM

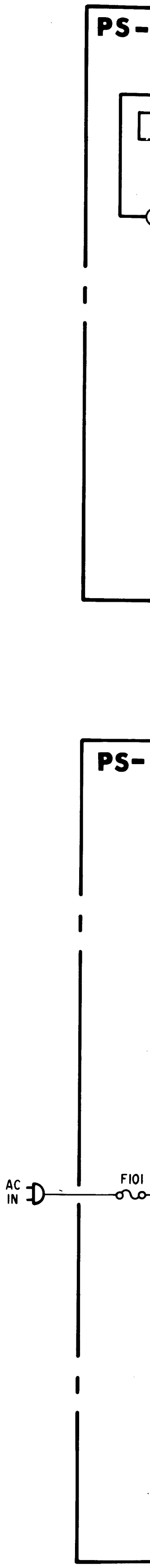


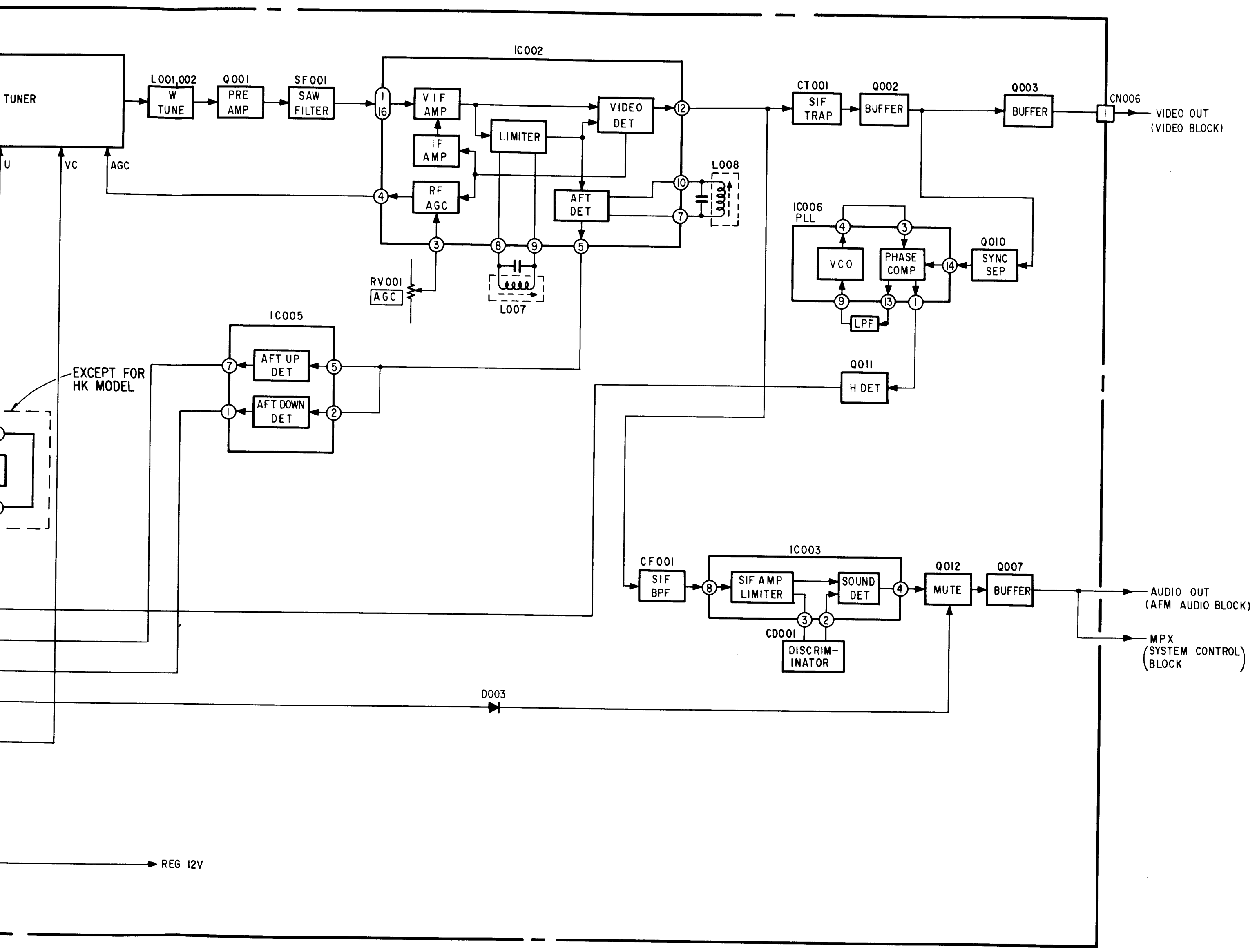
FT-17 BOARD
FT-16 BOARD
PW-29 BOARD
IC001
IC002
IC003
IC101
Q001
Q002
X001
X002
RESET IC
BACK UP 5V
-30V
V FDP
CS
X
EX
RST
5V
PWM
LINE/TUNER
SIRCS IN
SCK
SO
EDIT
SI
5034 RST
POWER CONT
CLOCK OUT
TA MUTE
AC REC
AFT DWN
AFT UP
SYNC
BAND2
BAND1
M NOS CLK
K-OUT0
K-OUT1
K-OUT2
K-OUT3
K-OUT4
K-OUT5
M NOS I/O
M NOS SC
K-IN 0
K-IN 1
K-IN 2
K-IN 3
GND
S0
S1
S2
S3
S4
G11
G10
G9
G8
G7
G6
G5
G4
G3
G2
G1
S11
S10
S9
S8
S7
S6
S5
W004
TO TS-125 BOARD CN201
BACK UP 5V
UNSWD 5V
POWER CONT
W002
TO TA-29 BOARD CN002
PWM
TA MUTE
AFT DOWN
AFT UP
SYNC
BAND2
BAND1
W008
TO SS-66 BOARD CN013
AC REF
W006
TO SS-66 BOARD CN009
M NOS CLK
K-OUT 0
K-OUT 1
K-OUT 2
M NOS CS
M NOS I/O
K-IN 3
K-IN 2
K-IN 1
K-IN 0
W007
TO VI-33 BOARD CN004
LINE/TUN
VTR/TV
W005
TO SS-66 BOARD CN004
TV/VTR
SIRCS IN
SCK
SO 5048
SI 5048
MECHA CS
EXT STB
MECHA RST
SYSTEM SYNC
UNSWD 5V
VTR/TV
POWER LED
EJ LED
5016 CS
MECHA CS
EXT STB
MECHA RST
X TAL
EX TAL
5034 RST
SYSTEM SYNC
K-OUT 0
K-OUT 1
K-OUT 2
K-OUT 3
UNSWD 5V
DN101
INDICATER
4.2V AC
S112 LINE/TVN
S101 TIMER
S102 QUIK TIMER
S103 CLOCK SET
S104 TIMER REC
S105 CHECK
S106 +
S107 −
S108 NEXT
S109 TV/VTR
S110 CLR
S111 SD/LP
S113 REC
S114 PB
S115 REW
S116 PAUSE
S117 TAPE RETURN
S118 FF
S119 STOP
S120 COUNTER RESET
CN001
W201
POWER SW C
POWER SW NO
EJ SW NO
EJ SW C
EJ LED
POWER LED
S201 POWER
S202 EJECT
D202
D201
+5V
(EJ)
(POWER)

3-15. TUNER BLOCK DIAGRAM

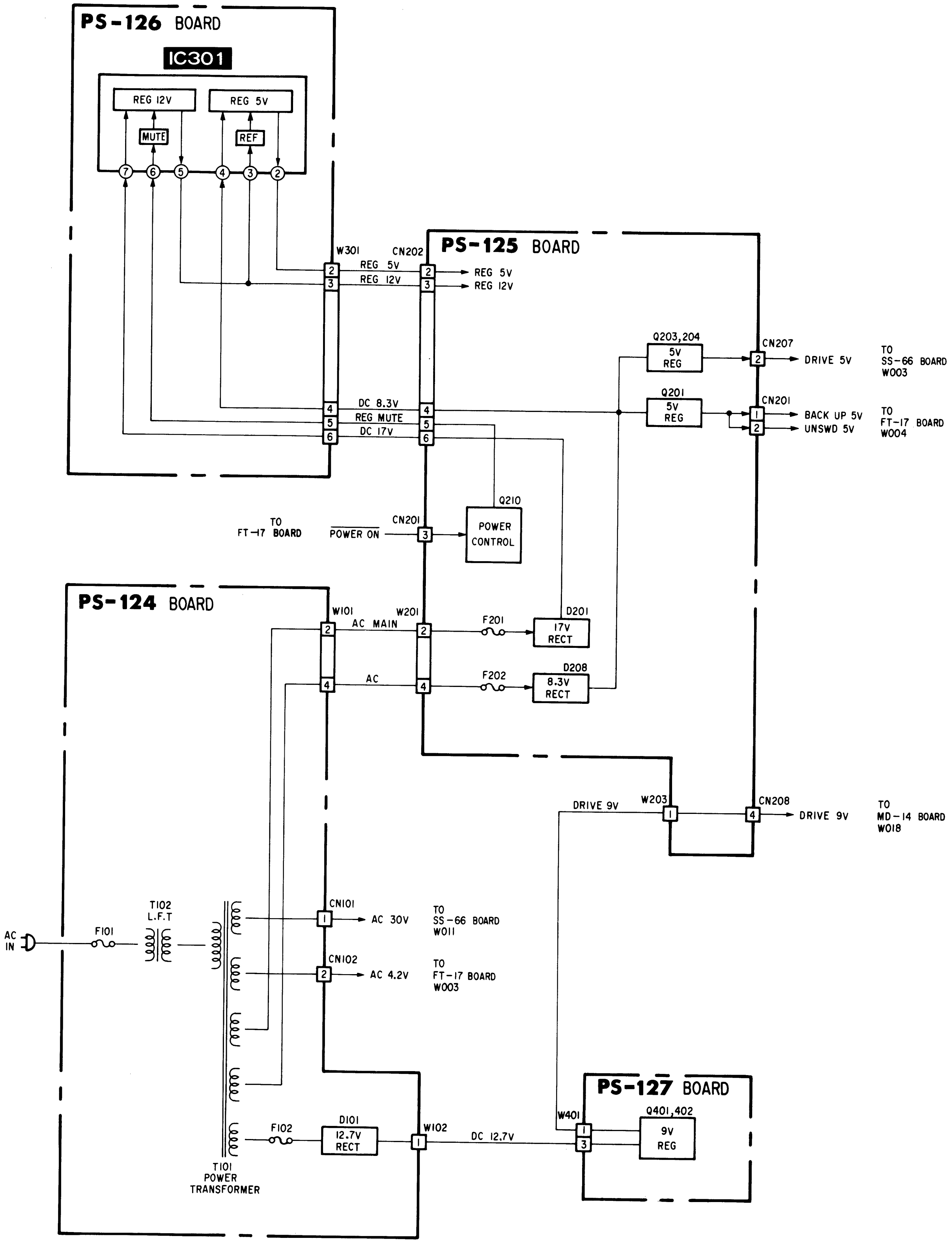

RFU-854(AS model)
AERIAL IN
BOOSTER
TO TUNER
AERIAL OUT
SW
RF-MOD
AUDIO IN
VIDEO IN
MODULATOR
TV/VTR
TO SS-66 BOARD
RFU-858 (HK model)
RFU-857 (AEP model)
AERIAL IN
AERIAL OUT
BOOSTER
MIXER
RF MODULATOR & TEST SIGNAL GENERATOR
AUDIO IN
VIDEO IN
MODULATOR
CN001
CN005
TA-29 BOARD (TUNER)
TUNER
L
H
U
VC
AGC
L001,002
W TUNE
Q001
PRE AMP
SF001
SAW FILTER
IC002
VIF AMP
IF AMP
RF AGC
LIMITER
VIDEO DET
AFT DET
L008
RV001
AGC
L007
CT001
SIF TRAP
Q002
BUFFER
Q003
BUFFER
CN006
VIDEO OUT
(VIDEO BLOCK)
IC006
PLL
VCO
PHASE COMP
LPF
Q010
SYNC SEP
Q011
H DET
IC005
AFT UP DET
AFT DOWN DET
EXCEPT FOR HK MODEL
IC001E
BAND DECORDER
VIDEO IN
(VIDEO BLOCK)
CN007
AUDIO IN
(AFM AUDIO BLOCK)
CN002
BAND 1
BAND 2
H DET
AFT UP
AFT DOWN
AUDIO MUTE
PWM
SYSTEM CONTROL BLOCK
Q006
D-A CONVERTER
IC004
+33V REG
POWER BLOCK
UNSWD 45V
REG 12V
W001
REG 12V
CF001
SIF BPF
IC003
SIF AMP LIMITER
SOUND DET
CD001
DISCRIM-INATOR
Q012
MUTE
Q007
BUFFER
D003
AUDIO OUT
(AFM AUDIO BLOCK)
MPX
(SYSTEM CONTROL BLOCK)

3-16. POW


PS-
PS-
AC IN
F101


TUNER
U
VC
AGC
L001,002
W TUNE
Q001
PRE AMP
SF001
SAW FILTER
IC002
VIF AMP
IF AMP
RF AGC
LIMITER
VIDEO DET
AFT DET
L008
RV001
AGC
L007
CT001
SIF TRAP
Q002
BUFFER
Q003
BUFFER
CN006
VIDEO OUT
(VIDEO BLOCK)
IC006
PLL
VCO
PHASE COMP
LPF
Q010
SYNC SEP
Q011
H DET
IC005
AFT UP DET
AFT DOWN DET
EXCEPT FOR HK MODEL
CF001
SIF BPF
IC003
SIF AMP LIMITER
SOUND DET
CD001
DISCRIM-INATOR
Q012
MUTE
Q007
BUFFER
AUDIO OUT
(AFM AUDIO BLOCK)
MPX
(SYSTEM CONTROL BLOCK)
D003
REG 12V

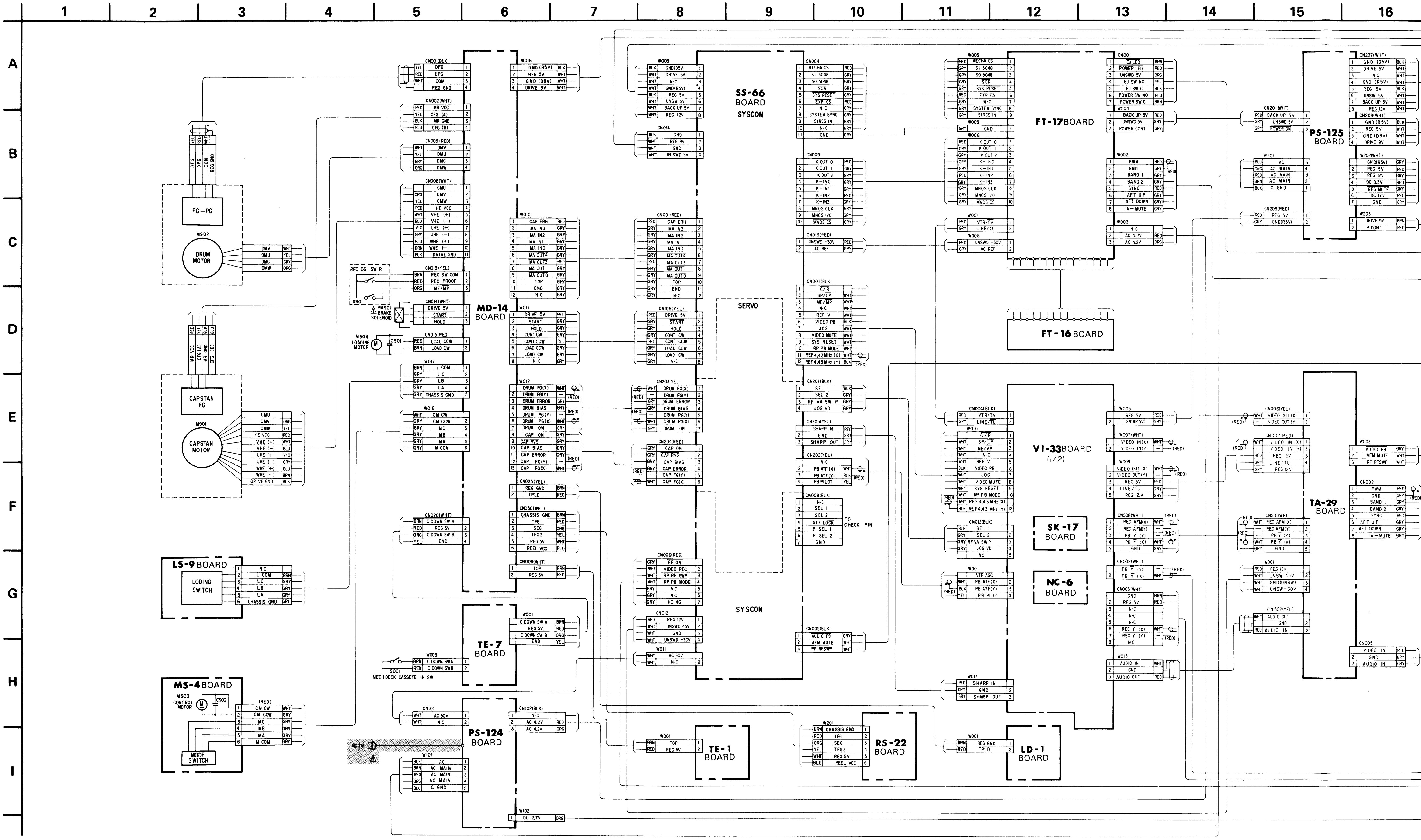
3-16. POWER BLOCK DIAGRAM

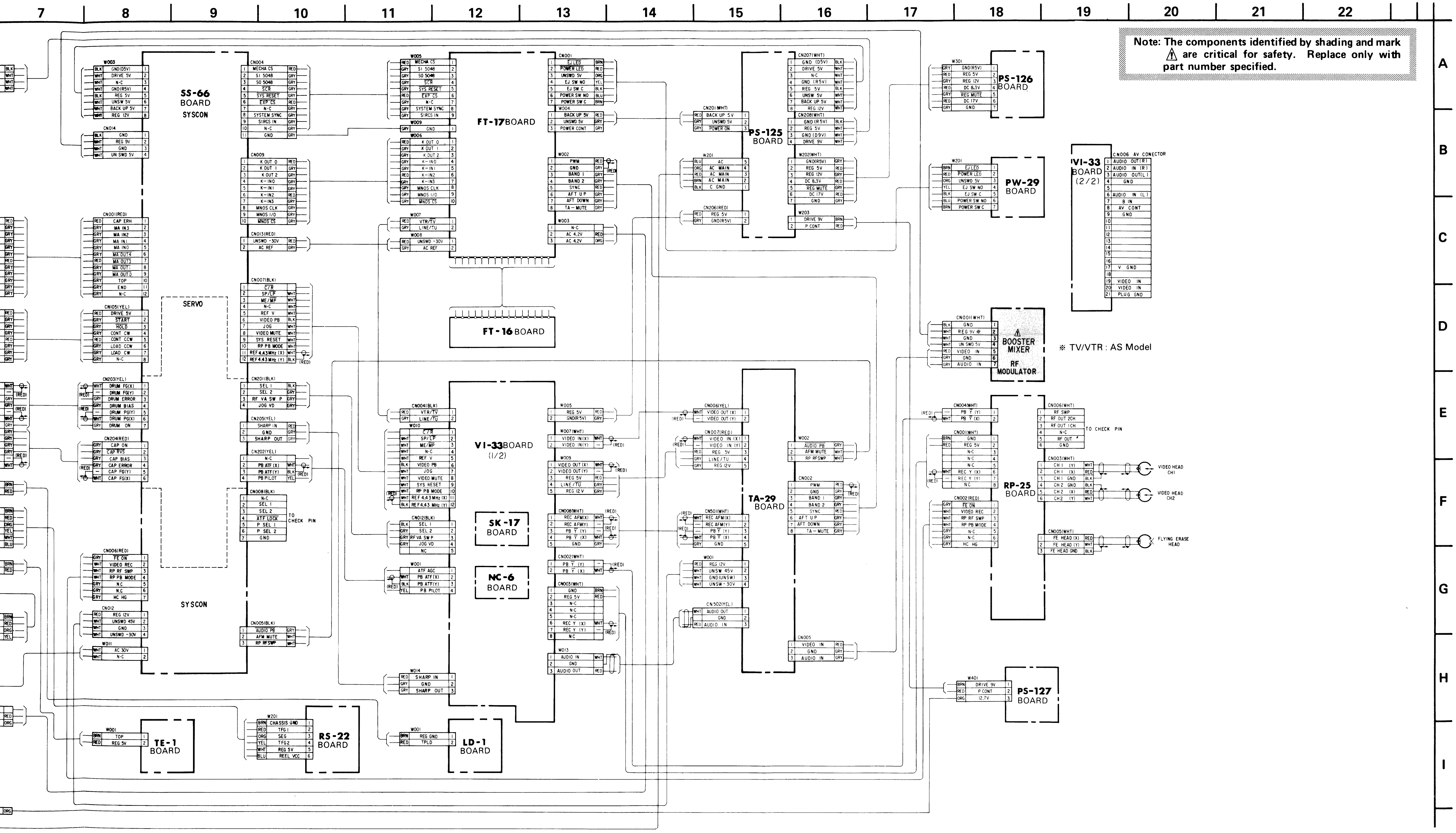

PS-126 BOARD
IC301
REG 12V
REG 5V
MUTE
REF
W301
CN202
REG 5V
REG 12V
PS-125 BOARD
REG 5V
REG 12V
Q203,204
5V REG
CN207
DRIVE 5V
TO SS-66 BOARD W003
Q201
5V REG
CN201
BACK UP 5V
UNSWD 5V
TO FT-17 BOARD W004
DC 8.3V
REG MUTE
DC 17V
Q210
POWER CONTROL
TO FT-17 BOARD
POWER ON
CN201
PS-124 BOARD
W101
W201
AC MAIN
AC
F201
D201
17V RECT
F202
D208
8.3V RECT
DRIVE 9V
W203
CN208
DRIVE 9V
TO MD-14 BOARD W018
AC IN
F101
T102
L.F.T
CN101
AC 30V
TO SS-66 BOARD W011
CN102
AC 4.2V
TO FT-17 BOARD W003
T101
POWER TRANSFORMER
F102
D101
12.7V RECT
W102
DC 12.7V
PS-127 BOARD
W401
Q401,402
9V REG

SECITON 4

SCHEMATIC DIAGRAM AND PRINTED WIRING BOARDS

4-1. FRAME SCHEMATIC DIAGRAM


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
FG-PG
M902
DRUM MOTOR
CAPSTAN FG
M901
CAPSTAN MOTOR
LS-9 BOARD
LODING SWITCH
MS-4 BOARD
M903 CONTROL MOTOR
C902
MODE SWITCH
REC OG SW R
S901
PM901 BRAKE SOLENOID
M904 LOADING MOTOR
C901
S001 MECH DECK CASSETTE IN SW
AC IN
MD-14 BOARD
TE-7 BOARD
PS-124 BOARD
SS-66 BOARD SYSCON
SERVO
SYSCON
TO CHECK PIN
TE-1 BOARD
RS-22 BOARD
FT-17 BOARD
FT-16 BOARD
VI-33 BOARD (1/2)
SK-17 BOARD
NC-6 BOARD
LD-1 BOARD
PS-125 BOARD
TA-29 BOARD
CN001(BLK)
CN002(WHT)
CN003(RED)
CN008(WHT)
CN013(YEL)
CN014(WHT)
CN015(RED)
W017
W016
CN020(WHT)
W018
W010
W011
W012
CN025(YEL)
CN050(WHT)
CN009(WHT)
W001
W003
CN101
W101
CN102(BLK)
W102
W003
CN014
CN001(RED)
CN105(YEL)
CN203(YEL)
CN204(RED)
CN006(RED)
CN012
W011
CN004
CN009
CN013(RED)
CN007(BLK)
CN201(BLK)
CN205(YEL)
CN202(YEL)
CN008(BLK)
CN005(BLK)
W201
W005
W009
W006
W007
W008
CN001
W004
W002
W003
CN004(BLK)
W010
CN012(BLK)
W001
W014
W001
W005
W007(WHT)
W009
CN008(WHT)
CN002(WHT)
CN003(WHT)
W013
CN201(WHT)
W201
CN206(RED)
CN207(WHT)
CN208(WHT)
W202(WHT)
W203
CN006(YEL)
CN007(RED)
CN501(WHT)
W001
CN502(YEL)
W002
CN002
CN005


7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
A
B
C
D
E
F
G
H
I
SS-66 BOARD SYSCON
SERVO
SYSCON
FT-17BOARD
FT-16 BOARD
VI-33BOARD (1/2)
SK-17 BOARD
NC-6 BOARD
PS-125 BOARD
TA-29 BOARD
PS-126 BOARD
PW-29 BOARD
VI-33 BOARD (2/2)
BOOSTER MIXER RF MODULATOR
RP-25 BOARD
PS-127 BOARD
TE-1 BOARD
RS-22 BOARD
LD-1 BOARD
VIDEO HEAD CH1
VIDEO HEAD CH2
FLYING ERASE HEAD
TO CHECK PIN
CN006 AV CONECTOR

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

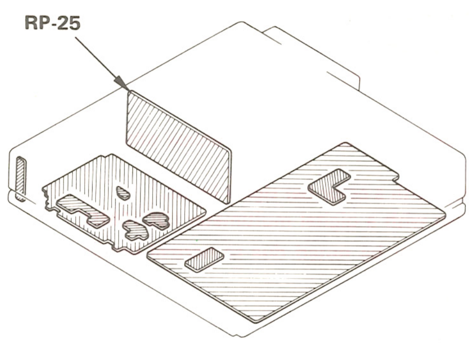
※ TV/VTR : AS Model

4-2. RP-25 (REC/PB AMP) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

– Ref. No. RP-25 BOARD: 3,000 series –

Note:

- ○— : indicates a lead wire mounted on the component side.
- ●— : indicates a lead wire mounted on the printed side.
- ▨ : soldering side.
- ▨ : B+ Pattern.

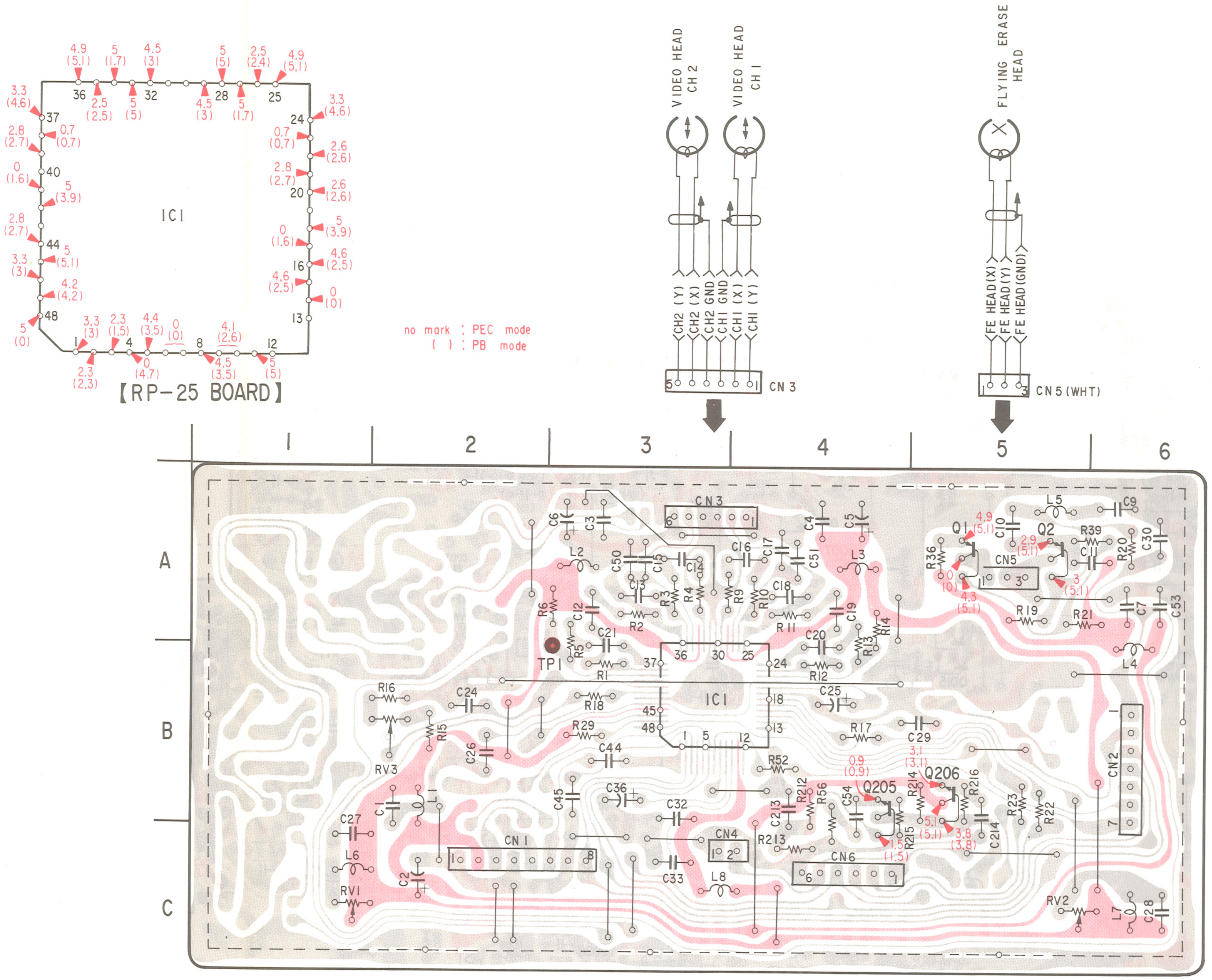


Note on Schematic Diagram:

- All resistors are in ohms, 1/6W unless otherwise noted. kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics. and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ☐ : adjustment for repair.
- ━━ : B + bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a color-bar signal input.
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltage variations may be noted due to normal production tolerances.
- no mark: REC mode
  ( ): PB mode
- Circled numbers refer to waveforms.

When indicating parts by reference number, please include the board name.

IC001	B-3
Q001	A-5
Q002	A-5
Q205	B-4
Q206	B-5
RV001	C-1
RV002	C-5
RV003	B-2
TP001	B-3

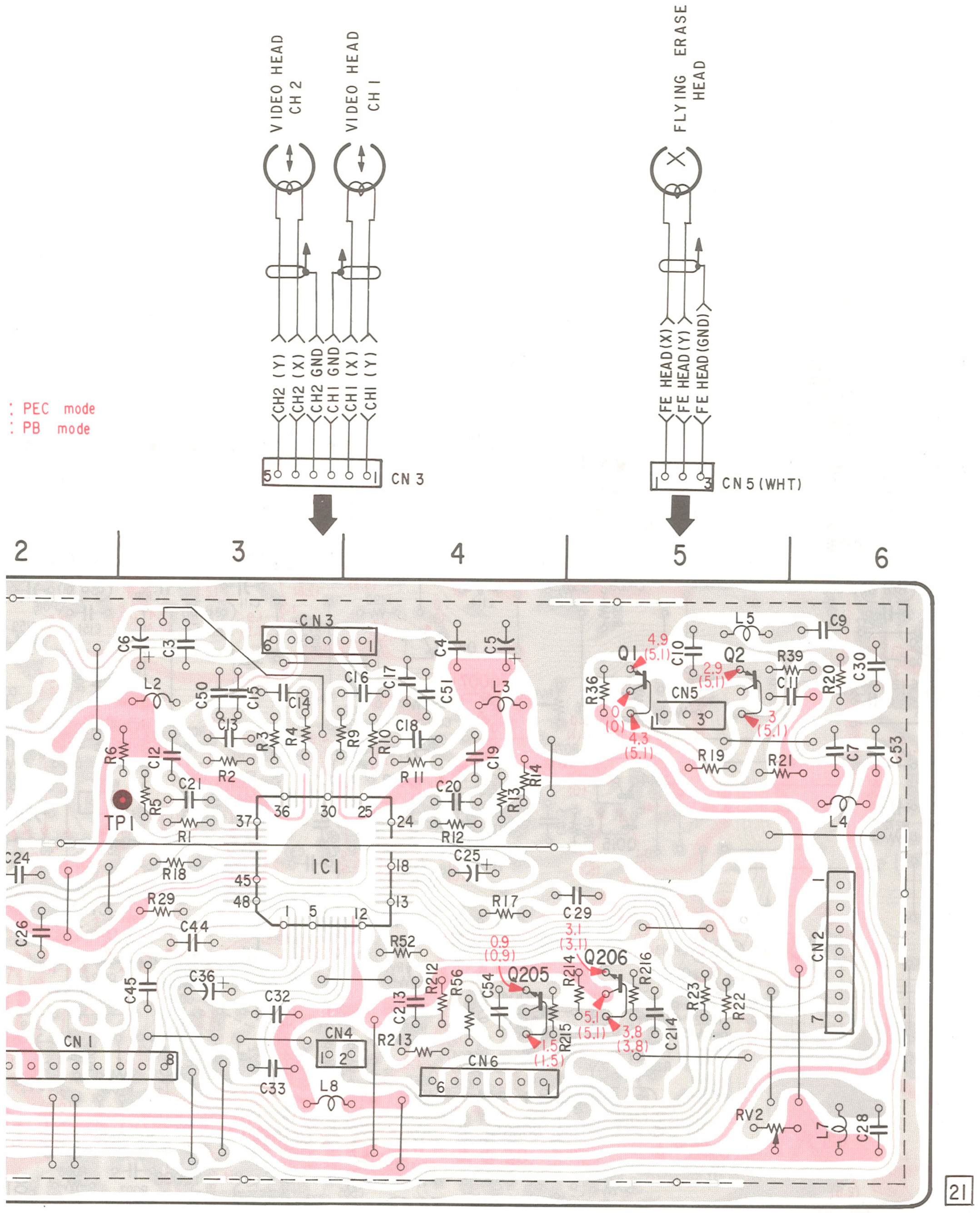

IC1
1
4
8
12
13
16
20
24
25
28
32
36
37
40
44
48
4.9 (5.1)
5 (1.7)
4.5 (3)
5 (5)
2.5 (2.4)
4.9 (5.1)
2.5 (2.5)
5 (5)
4.5 (3)
5 (1.7)
3.3 (4.6)
2.8 (2.7)
0.7 (0.7)
0 (1.6)
5 (3.9)
2.8 (2.7)
5 (5.1)
3.3 (3)
4.2 (4.2)
5 (0)
3.3 (3)
2.3 (1.5)
4.4 (3.5)
0 (0)
4.1 (2.6)
2.3 (2.3)
0 (4.7)
4.5 (3.5)
5 (5)
3.3 (4.6)
0.7 (0.7)
2.6 (2.6)
2.8 (2.7)
2.6 (2.6)
5 (3.9)
0 (1.6)
4.6 (2.5)
4.6 (2.5)
0 (0)

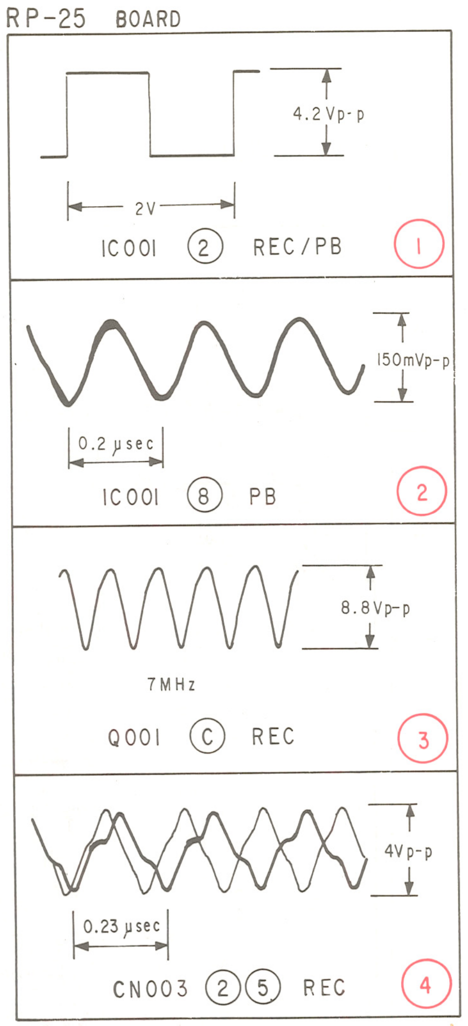
【RP-25 BOARD】

no mark : PEC mode
( ) : PB mode

VIDEO HEAD CH 2
VIDEO HEAD CH 1
FLYING ERASE HEAD
CH2 (Y)
CH2 (X)
CH2 GND
CH1 GND
CH1 (X)
CH1 (Y)
FE HEAD (X)
FE HEAD (Y)
FE HEAD (GND)
CN 3
CN 5 (WHT)
1
2
3
4
5
6
A
B
C
IC1
Q1
Q2
Q205
Q206
TP1
CN1
CN2
CN4
CN5
CN6
RV1
RV2
RV3
L2
L3
L4
L5
L6
L7
L8

: PEC mode
: PB mode


VIDEO HEAD CH 2
VIDEO HEAD CH 1
FLYING ERASE HEAD
CH2 (Y)
CH2 (X)
CH2 GND
CH1 GND
CH1 (X)
CH1 (Y)
FE HEAD (X)
FE HEAD (Y)
FE HEAD (GND)
CN 3
CN 5 (WHT)
2
3
4
5
6
IC1
Q1
Q2
Q205
Q206
TP1
CN1
CN2
CN4
CN6
RV2
21



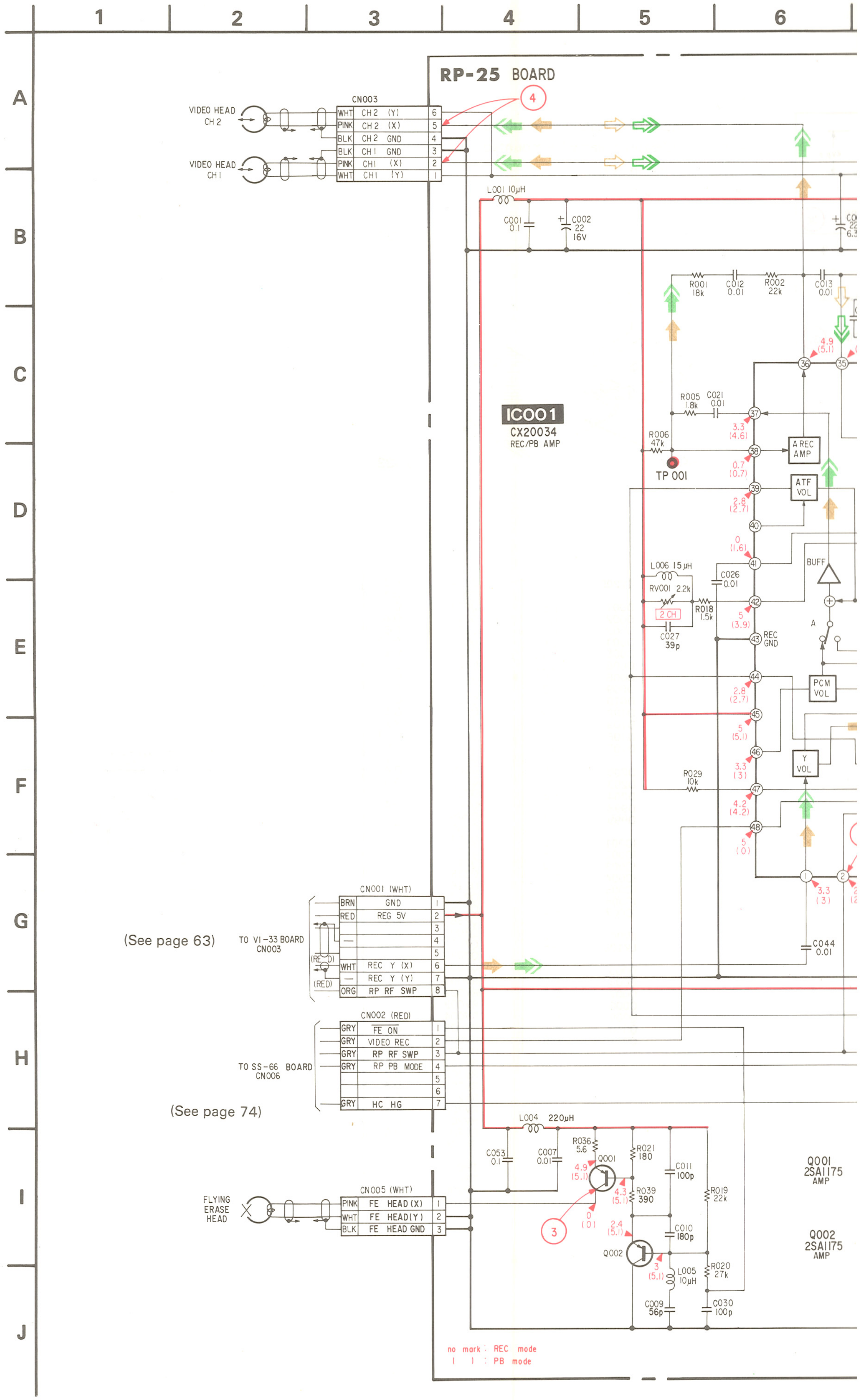
- **Signal path**

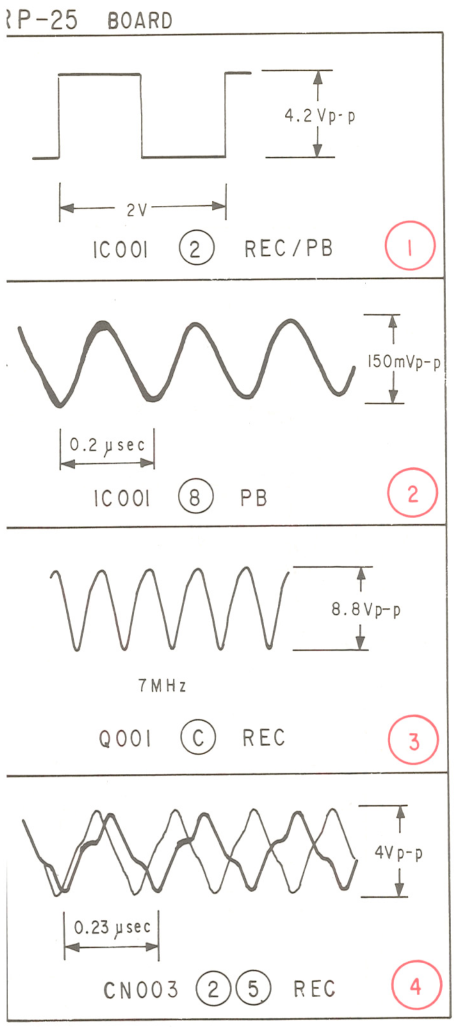
➡ : REC Y & CHROMA SIGNAL

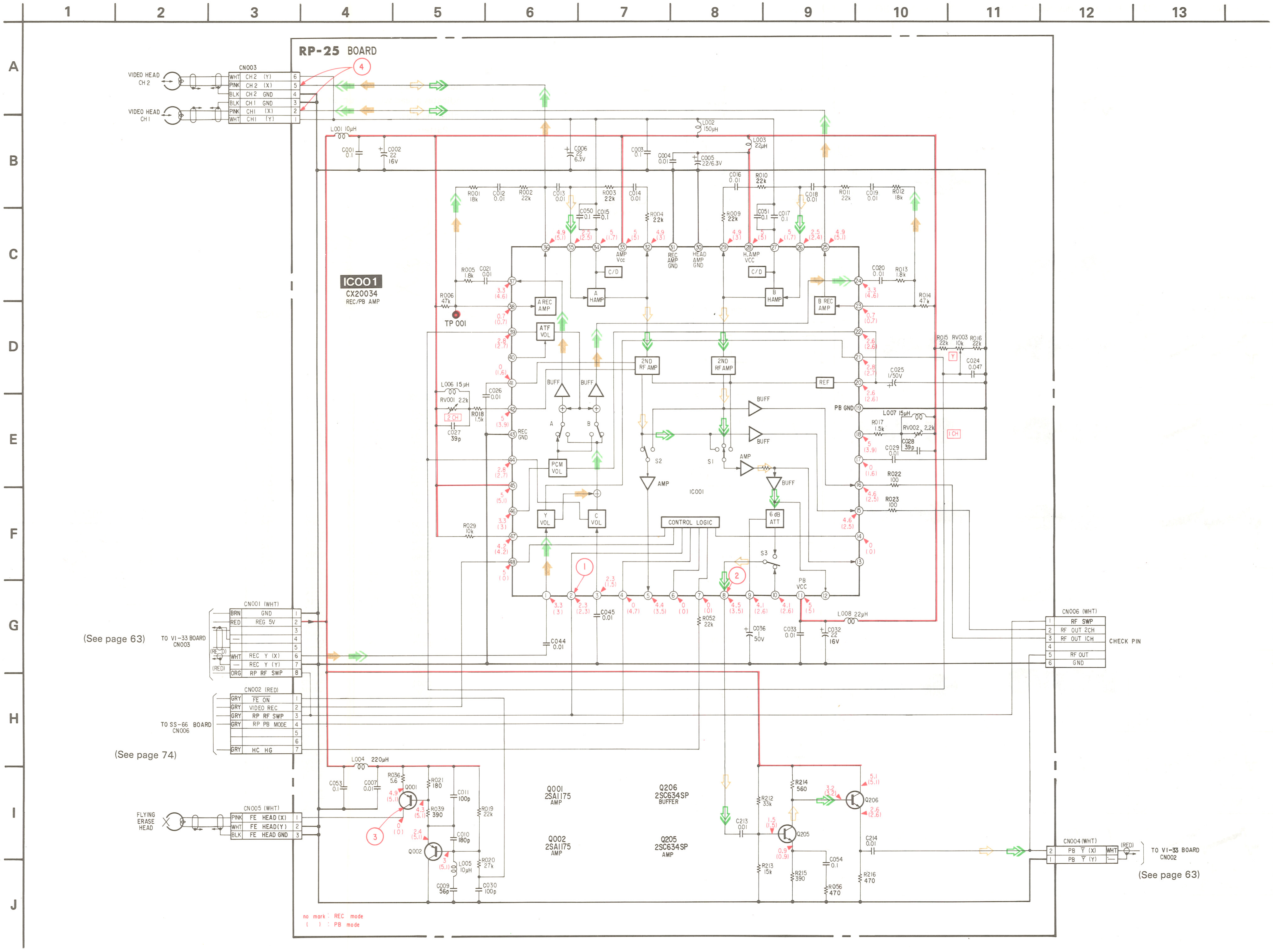
⇨ : PB Y & CHROMA SIGNAL

➡ : REC AUDIO SIGNAL

⇨ : PB AUDIO SIGNAL


1
2
3
4
5
6
A
B
C
D
E
F
G
H
I
J
RP-25 BOARD
VIDEO HEAD CH 2
VIDEO HEAD CH 1
CN003
WHT CH2 (Y) 6
PINK CH2 (X) 5
BLK CH2 GND 4
BLK CH1 GND 3
PINK CH1 (X) 2
WHT CH1 (Y) 1
IC001 CX20034 REC/PB AMP
TP 001
A REC AMP
ATF VOL
BUFF
PCM VOL
Y VOL
(See page 63)
TO VI-33 BOARD CN003
CN001 (WHT)
BRN GND 1
RED REG 5V 2
3
— 4
5
WHT REC Y (X) 6
— REC Y (Y) 7
ORG RP RF SWP 8
(See page 74)
TO SS-66 BOARD CN006
CN002 (RED)
GRY FE ON 1
GRY VIDEO REC 2
GRY RP RF SWP 3
GRY RP PB MODE 4
5
6
GRY HC HG 7
FLYING ERASE HEAD
CN005 (WHT)
PINK FE HEAD (X) 1
WHT FE HEAD (Y) 2
BLK FE HEAD GND 3
Q001 2SA1175 AMP
Q002 2SA1175 AMP
no mark : REC mode
( ) : PB mode


RP-25 BOARD
4.2Vp-p
2V
IC001 ② REC/PB ①
150mVp-p
0.2μsec
IC001 ⑧ PB ②
8.8Vp-p
7MHz
Q001 Ⓒ REC ③
4Vp-p
0.23μsec
CN003 ②⑤ REC ④


1 2 3 4 5 6 7 8 9 10 11 12 13
A B C D E F G H I J
RP-25 BOARD
IC001
CX20034
REC/PB AMP
VIDEO HEAD CH2
VIDEO HEAD CH1
CN003
WHT CH2 (Y)
PINK CH2 (X)
BLK CH2 GND
BLK CH1 GND
PINK CH1 (X)
WHT CH1 (Y)
L001 10μH
C001 0.1
C002 22 16V
C006 22 6.3V
C003 0.1
C004 0.01
C005 22/6.3V
L002 150μH
L003 22μH
R001 18k
C012 0.01
R002 22k
C013 0.01
C050 0.1
C015 0.1
R003 22k
C014 0.01
R004 22k
C016 0.01
R010 22k
R009 22k
C051 0.1
C017 0.1
C018 0.01
R011 22k
C019 0.01
R012 18k
R005 1.8k
C021 0.01
R006 47k
TP001
C020 0.01
R013 1.8k
R014 47k
R015 22k
RV003 10k
R016 22k
C024 0.047
C025 1/50V
AMP Vcc
REC AMP GND
HEAD AMP GND
H.AMP VCC
C/D
A HAMP
B HAMP
A REC AMP
B REC AMP
ATF VOL
2ND RF AMP
REF
BUFF
PB GND
L006 15μH
RV001 2.2k
C026 0.01
2CH
C027 39p
R018 1.5k
REC GND
L007 15μH
R017 1.5k
RV002 2.2k
C028 39p
C029 0.01
1CH
PCM VOL
S2
S1
AMP
6dB ATT
R022 100
R023 100
Y VOL
C VOL
CONTROL LOGIC
R029 10k
S3
PB VCC
C045 0.01
C044 0.01
R052 22k
C036 1 50V
C033 0.01
C032 22 16V
L008 22μH
CN001 (WHT)
BRN GND
RED REG 5V
WHT REC Y (X)
REC Y (Y)
ORG RP RF SWP
(RED)
TO VI-33 BOARD CN003
(See page 63)
CN002 (RED)
GRY FE ON
GRY VIDEO REC
GRY RP RF SWP
GRY RP PB MODE
GRY HC HG
TO SS-66 BOARD CN006
(See page 74)
CN006 (WHT)
RF SWP
RF OUT 2CH
RF OUT 1CH
RF OUT
GND
CHECK PIN
L004 220μH
C053 0.1
C007 0.01
R036 5.6
Q001
R021 180
C011 100p
R039 390
R019 22k
C010 180p
R020 27k
L005 10μH
Q002
C009 56p
C030 100p
FLYING ERASE HEAD
CN005 (WHT)
PINK FE HEAD (X)
WHT FE HEAD (Y)
BLK FE HEAD GND
Q001 2SA1175 AMP
Q002 2SA1175 AMP
Q206 2SC634SP BUFFER
Q205 2SC634SP AMP
R214 560
R212 33k
C213 0.01
Q205
R213 15k
R215 390
C054 0.1
R056 470
C214 0.01
R216 470
Q206
CN004 (WHT)
PB Y (X)
PB Y (Y)
(RED)
TO VI-33 BOARD CN002
(See page 63)
no mark : REC mode
( ) : PB mode

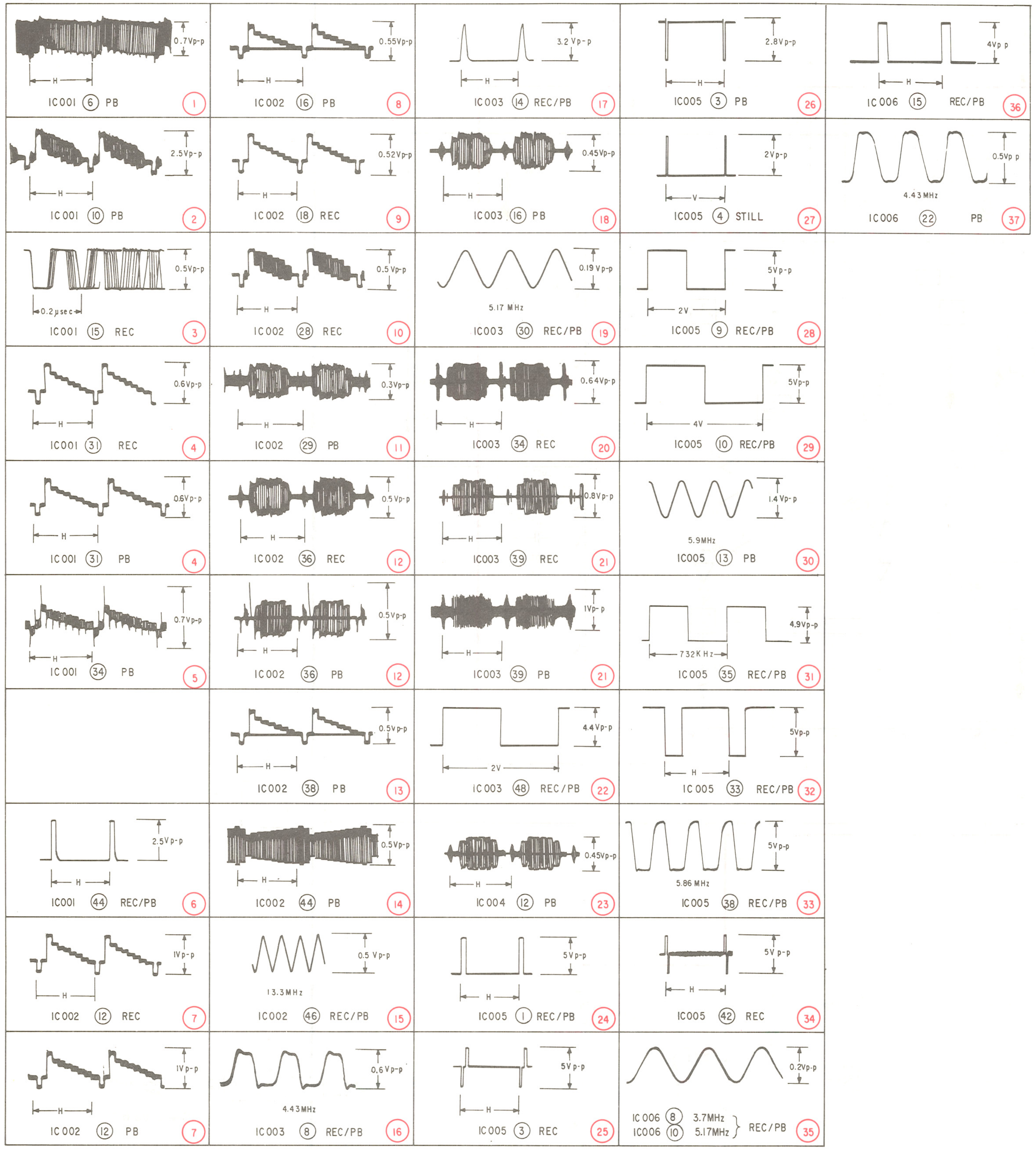
Signal path

- ➩ : REC Y & CHROMA SIGNAL
- ⇨ : PB Y & CHROMA SIGNAL
- ➩ : REC AUDIO SIGNAL
- ⇨ : PB AUDIO SIGNAL

4-3. VI-33 (VIDEO), SK-17 (VIDEO), NC-6 (NOISE CANCEL) PRINTED WIRING BOARDS

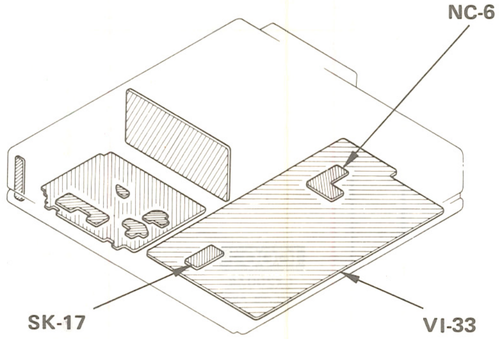
– Ref. No. VI-33 BOARD: 1,000 series, SK-17 BOARD: 1,000 series, NC-6 BOARD: 1,000 series –

VI-33 BOARD



Note:

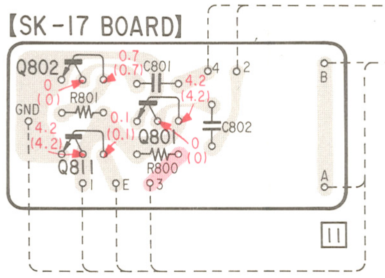
- ○— : indicates a lead wire mounted on the component side.
- ●— : indicates a lead wire mounted on the printed side.
- ▨ : soldering side.
- ▨ : B+ Pattern.


NC-6
SK-17
VI-33

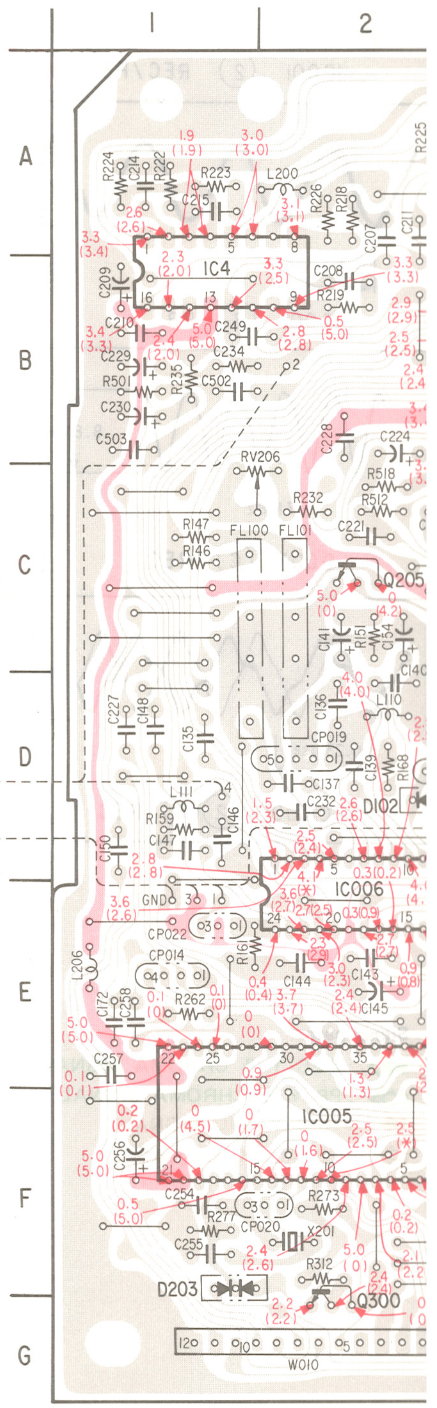
CV200	C-3
D001	E-5
D002	D-10
D003	E-6
D004	E-6
D005	D-10
D006	D-11
D008	E-9
D009	E-7
D010	D-11
D102	D-2
D103	E-4
D106	D-3
D107	D-3
D200	F-9
D203	F-1
D204	E-3
D998	D-11
D999	D-11
IC001	E-9
IC002	C-8
IC003	B-3
IC004	B-1
IC005	F-2
IC006	E-2
IC007	F-4
LV001	F-6
LV100	B-8
Q003	E-11
Q004	E-10
Q007	D-7
Q008	F-8
Q009	F-7
Q010	F-7
Q011	D-6

Q012	D-7
Q013	D-7
Q014	D-6
Q015	D-6
Q016	E-6
Q017	D-10
Q021	F-5
Q101	C-7
Q102	C-6
Q103	B-6
Q104	C-6
Q105	C-10
Q107	B-7
Q108	C-10
Q109	E-5
Q110	C-10
Q200	D-4
Q201	D-3
Q203	D-4
Q204	D-4
Q205	C-2
Q206	C-3
Q207	F-4
Q212	E-5
Q213	G-6
Q215	C-4
Q216	E-6
Q217	B-5
Q218	G-8
Q258	E-3
Q300	G-2
Q701	D-12
Q702	E-12
Q703	E-12
RV001	F-9
RV002	F-9
RV003	E-7
RV004	E-7
RV005	D-6
RV006	D-6
RV100	A-5
RV101	A-8
RV102	C-2
RV103	D-3
RV201	C-3
RV202	A-3
RV203	E-6
RV205	D-5
RV206	C-1
TP001	D-11
TP002	F-11
TP200	D-4
TP202	F-7

【SK-17 BOARD】


Q802
R801
C801
Q801
R800
Q811
C802
GND
E
3
4
2
B
A
11

【VI-33 BOARD】


1
2
A
B
C
D
E
F
G
IC4
IC006
IC005
R223
L200
C208
C209
C210
C229
C249
C234
R501
C502
C230
C503
C224
RV206
R518
R232
R512
R147
R146
FL100
FL101
C221
Q205
C141
L110
CP019
C137
C232
D102
R159
C147
C150
CP022
CP014
R262
C144
C143
C145
L206
C257
C256
C254
R277
CP020
R273
X201
C255
D203
R312
Q300
W010

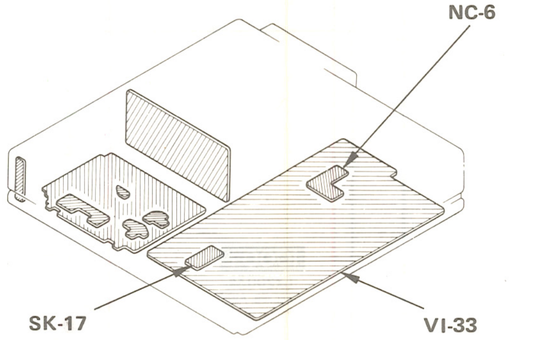
ıte:

○— : indicates a lead wire mounted on the component side.

●— : indicates a lead wire mounted on the printed side.

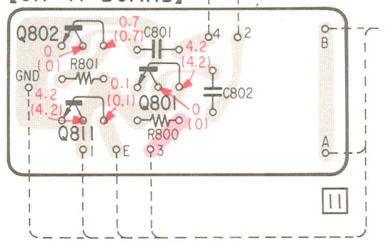
▨ : soldering side.

▨ : B+ Pattern.

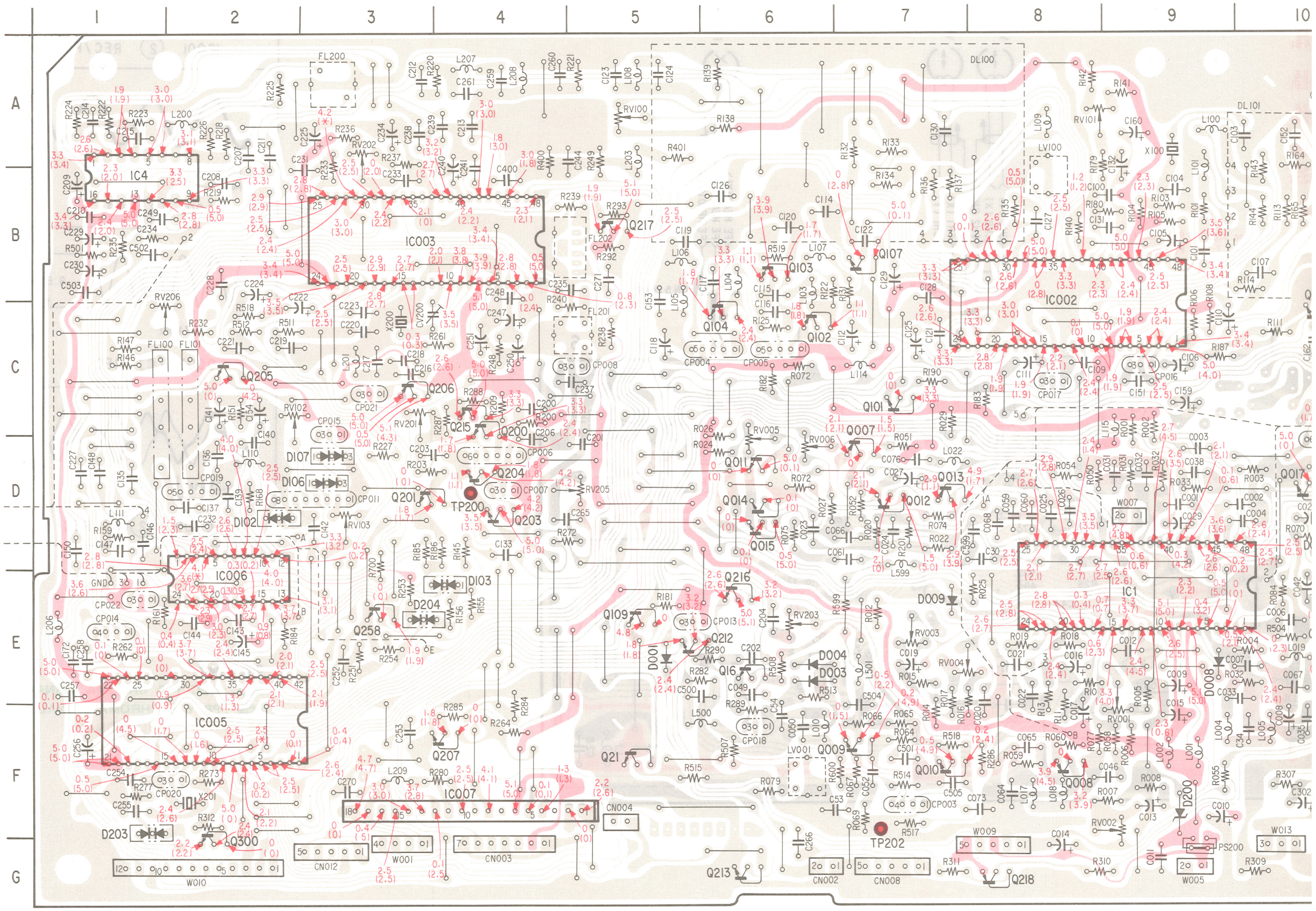

NC-6
SK-17
VI-33

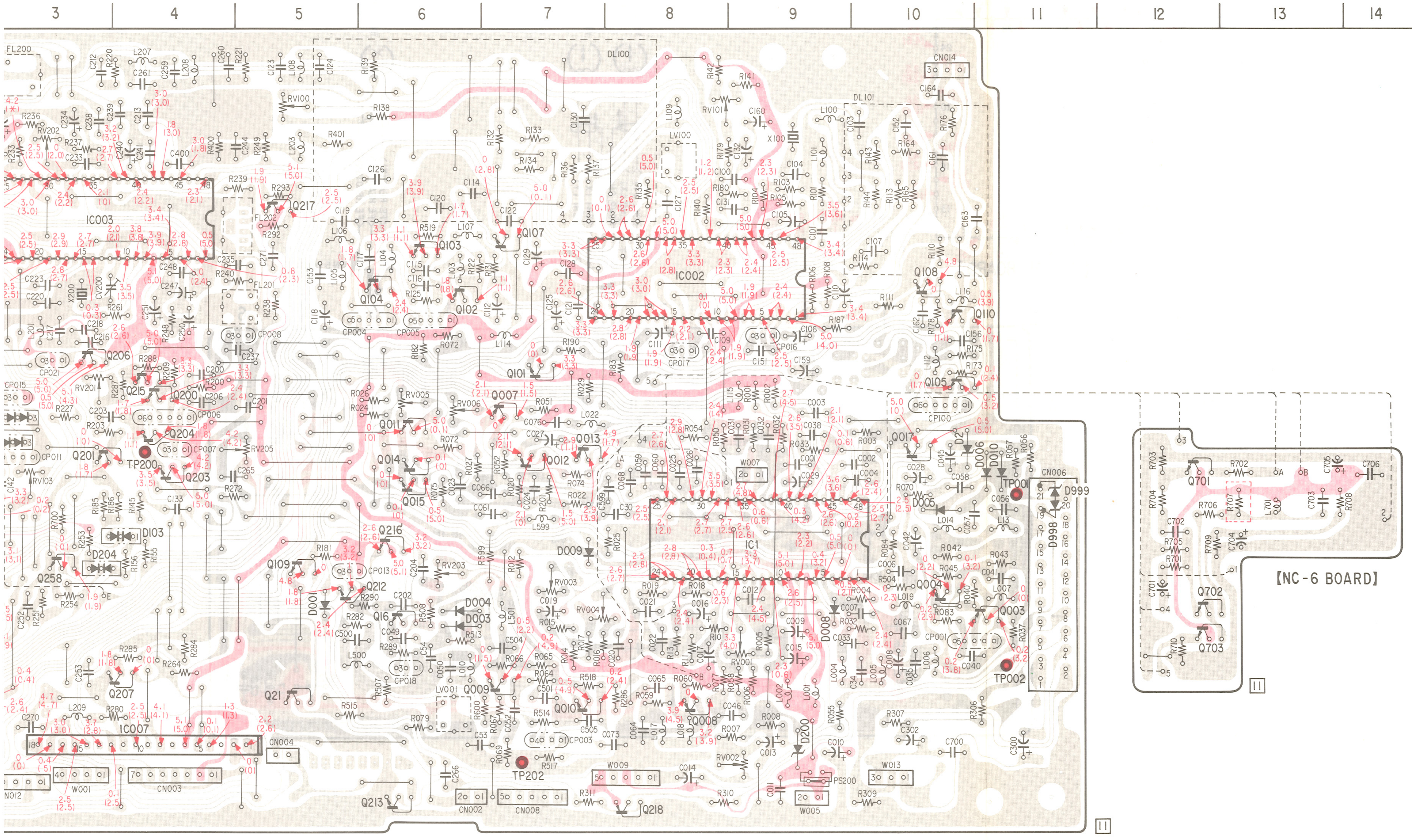
CV200	C-3	Q012	D-7
		Q013	D-7
D001	E-5	Q014	D-6
D002	D-10	Q015	D-6
D003	E-6	Q016	E-6
D004	E-6	Q017	D-10
D005	D-10	Q021	F-5
D006	D-11	Q101	C-7
D008	E-9	Q102	C-6
D009	E-7	Q103	B-6
D010	D-11	Q104	C-6
D102	D-2	Q105	C-10
D103	E-4	Q107	B-7
D106	D-3	Q108	C-10
D107	D-3	Q109	E-5
		Q110	C-10
D200	F-9	Q200	D-4
D203	F-1	Q201	D-3
D204	E-3	Q203	D-4
D998	D-11	Q204	D-4
D999	D-11	Q205	C-2
		Q206	C-3
IC001	E-9	Q207	F-4
IC002	C-8	Q212	E-5
IC003	B-3	Q213	G-6
IC004	B-1	Q215	C-4
IC005	F-2	Q216	E-6
IC006	E-2	Q217	B-5
IC007	F-4	Q218	G-8
		Q258	E-3
LV001	F-6	Q300	G-2
LV100	B-8	Q701	D-12
		Q702	E-12
Q003	E-11	Q703	E-12
Q004	E-10	RV001	F-9
Q007	D-7	RV002	F-9
Q008	F-8	RV003	E-7
Q009	F-7	RV004	E-7
Q010	F-7	RV005	D-6
Q011	D-6	RV006	D-6
		RV100	A-5
		RV101	A-8
		RV102	C-2
		RV103	D-3
		RV201	C-3
		RV202	A-3
		RV203	E-6
		RV205	D-5
		RV206	C-1
		TP001	D-11
		TP002	F-11
		TP200	D-4
		TP202	F-7

【SK-17 BOARD】


Q802
C801
R801
GND
Q801
R800
Q811
C802
11

【VI-33 BOARD】


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
G
IC4
IC003
IC002
IC006
IC005
IC007
IC1
DL100
DL101
TP200
TP202
CN003
CN002
CN008
CN012
W010
W001
W009
W005
W013
PS200



Note:

- All resistors are in ohms, 1/6W unless otherwise noted. kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics. and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ☐ : panel designation.
- ☐ : adjustment for repair.
- ▬ : B + bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a color-bar signal input.
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltage variations may be noted due to normal production tolerances.
- no mark: REC mode
  ( ): PB mode
- Marked "✳" is not able to measure the voltage of it's position.
- Circled numbers refer to waveforms.

> Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

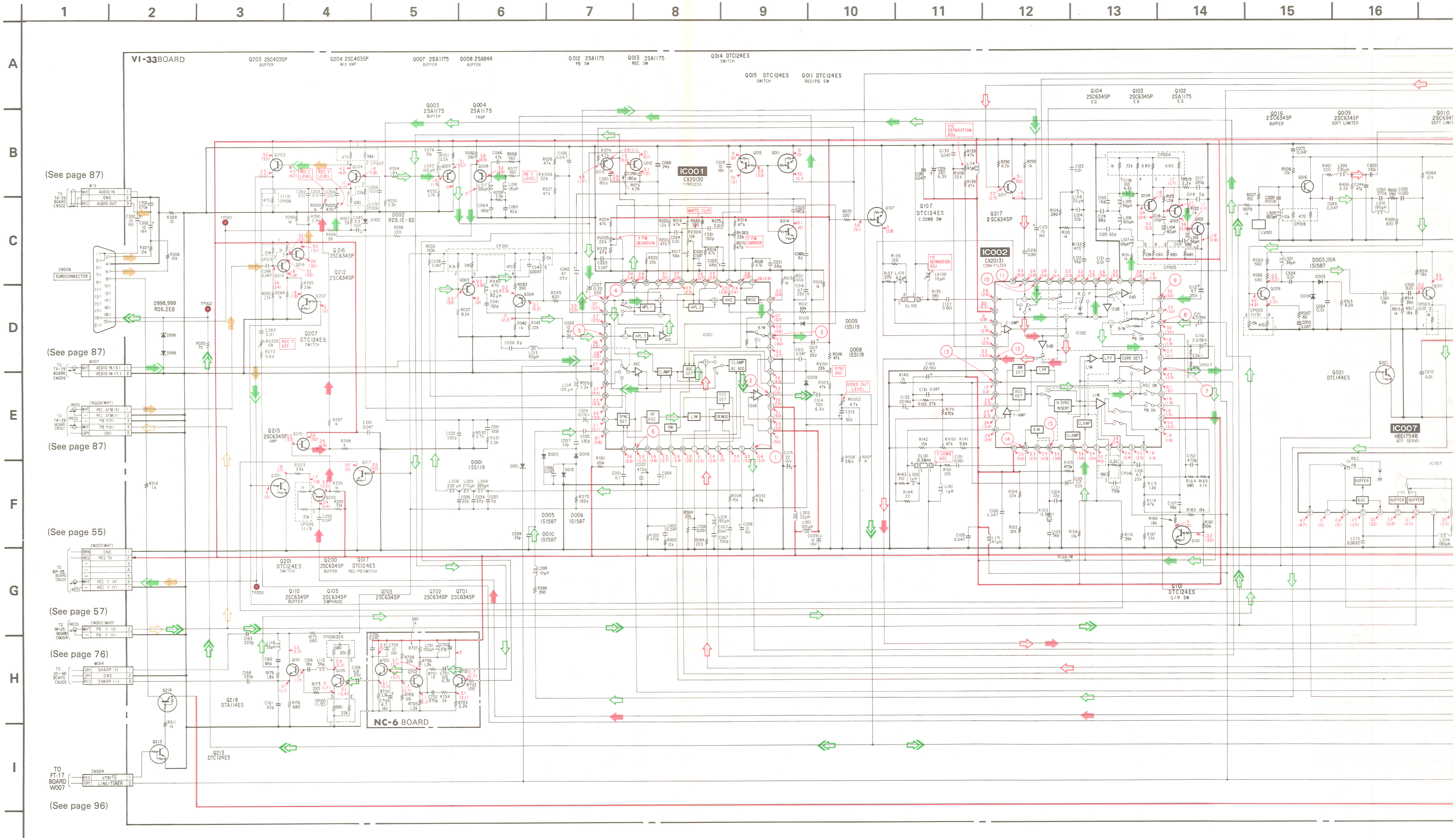
When indicating parts by reference number, please include the board name.

- Signal path
  - ➡ : REC Y Signal
  - ⇨ : PB Y Signal
  - ➡ : REC CHROMA Signal
  - ⇨ : PB CHROMA Signal
  - ➡➡ : REC Y/CHROMA Signal
  - ⇨⇨ : PB Y/CHROMA Signal
  - ➡ : REC AUDIO Signal
  - ⇨ : PB AUDIO Signal

R707 is an adjusting resistor. When it is replaced by occasion of repair, use a part having the same constant as the part which has been installed.

VI-33 (VIDEO), SK-17 (VIDEO), NC-6 (NOISE CANCEL) SCHEMATIC DIAGRAM

– Ref. No. VI-33 BOARD: 1,000 series, SK-17 BOARD: 1,000 series, NC-6 BOARD: 1,000 series –


1
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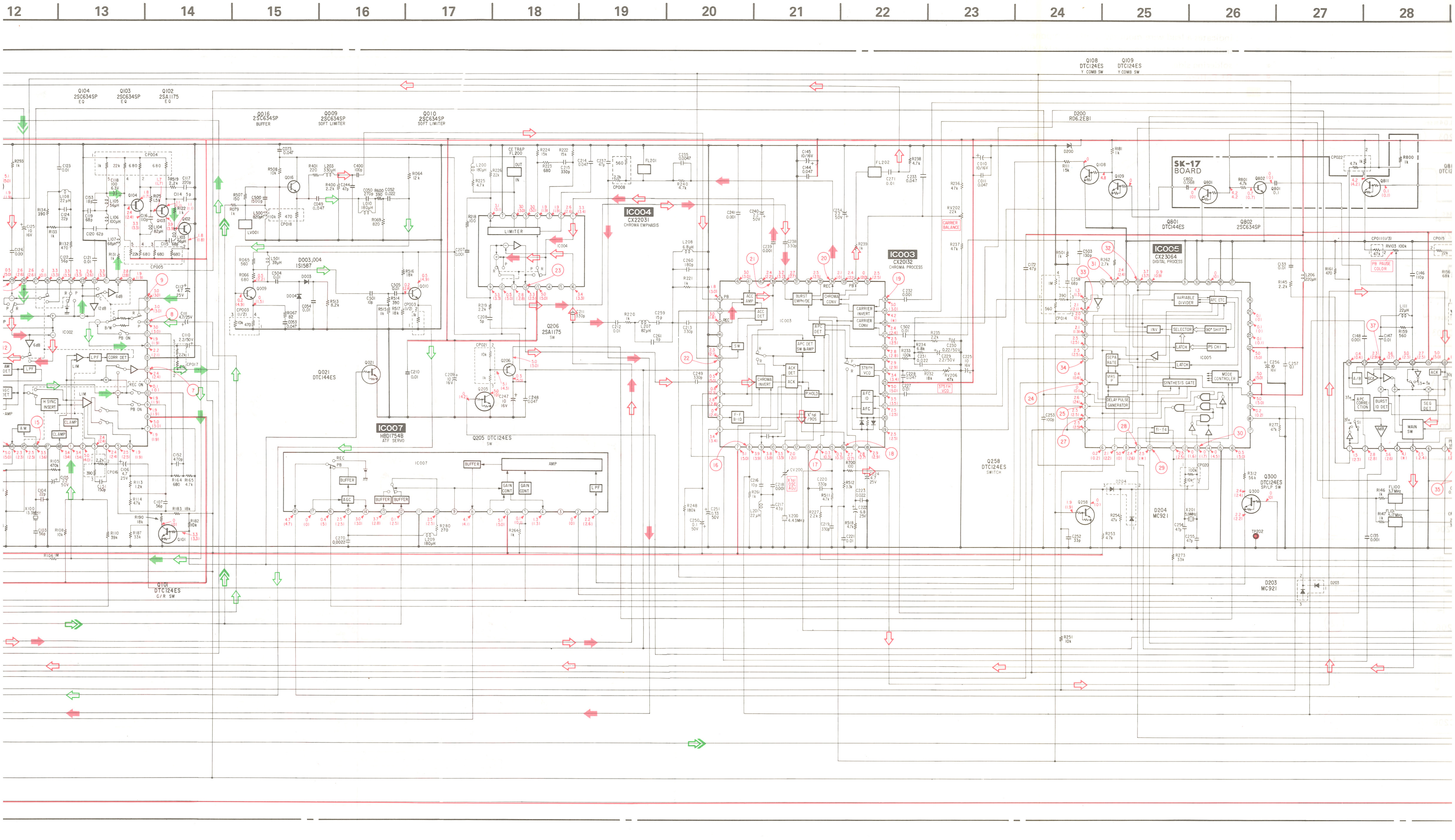
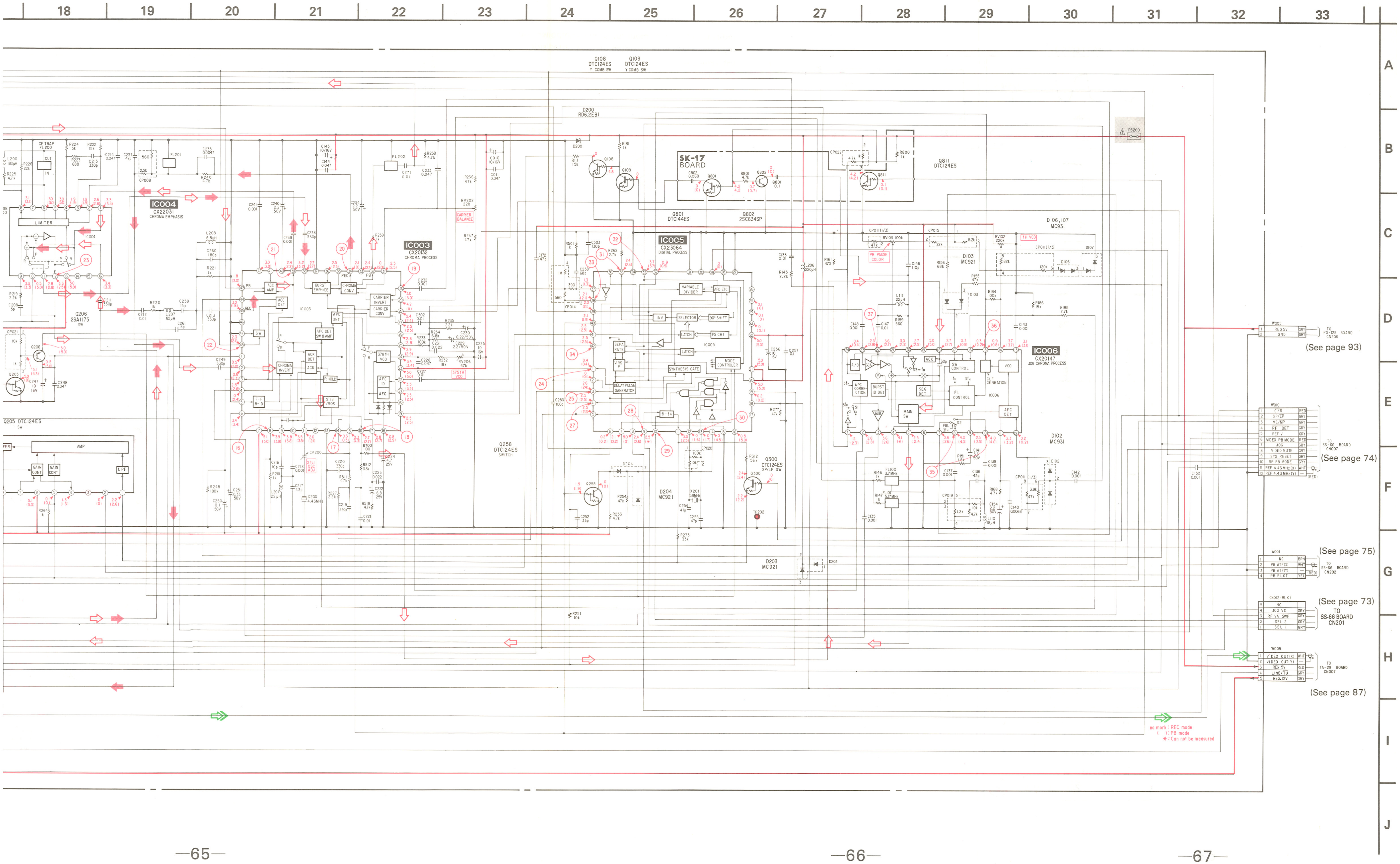
14
15
16
A
B
C
D
E
F
G
H
I
J
VI-33 BOARD
NC-6 BOARD
IC001 CX20130 Y PROCESS
IC002 CX20131 CONV FILTER
IC007 HBD1754B ATF SERVO
(See page 87)
(See page 87)
(See page 87)
(See page 55)
(See page 57)
(See page 76)
(See page 96)
EUROCONNECTOR
CN006
TO TA-29 BOARD CN502
TO TA-29 BOARD CN006
TO TA-29 BOARD CN501
TO RP-25 BOARD CN001
TO RP-25 BOARD CN004
TO SS-66 BOARD CN205
TO FT-17 BOARD W007
Q203 2SC403SP BUFFER
Q204 2SC403SP MIX AMP
Q007 2SA1175 BUFFER
Q008 2SA844 BUFFER
Q012 2SA1175 PB SW
Q013 2SA1175 REC SW
Q014 DTC124ES SWITCH
Q015 DTC124ES SWITCH
Q011 DTC124ES REC/PB SW
Q003 2SA1175 BUFFER
Q004 2SA1175 TRAP
Q104 2SC634SP EQ
Q103 2SC634SP EQ
Q102 2SA1175 EQ
Q016 2SC634SP BUFFER
Q009 2SC634SP SOFT LIMITER
Q010 2SC634SP SOFT LIMIT
Q216 2SC634SP
Q212 2SC634SP
Q207 DTC124ES SWITCH
Q215 2SC634SP AMP
Q107 DTC124ES C COMB SW
Q217 2SC634SP
Q201 DTC124ES SWITCH
Q200 2SC634SP BUFFER
Q017 DTC124ES REC/PB SWITCH
Q110 2SC634SP BUFFER
Q105 2SC634SP EMPHASIS
Q703 2SC634SP
Q702 2SC634SP
Q701 2SC634SP
Q218 DTA114ES
Q213 DTC124ES
Q021 DTC144ES
Q101 DTC124ES C/R SW
D998,999 RD6.2EB
D002 RD5.1E-B2
D001 1SS119
D009 1SS119
D008 1SS119
D005 1S1587
D006 1S1587
D010 1S1587
D003,004 1S1587
WHITE CLIP
Y FM DEVIATION
Y FM CARRIER
Y/C SEPARATION ADJ
VIDEO OUT LEVEL
SYNC AGC
REC C LEVEL
REC Y LEVEL
PB Y LEVEL
REC Y ATF
Y COMB AGC
REC
PB
BUFFER
AGC
TP001
TP002
TP200

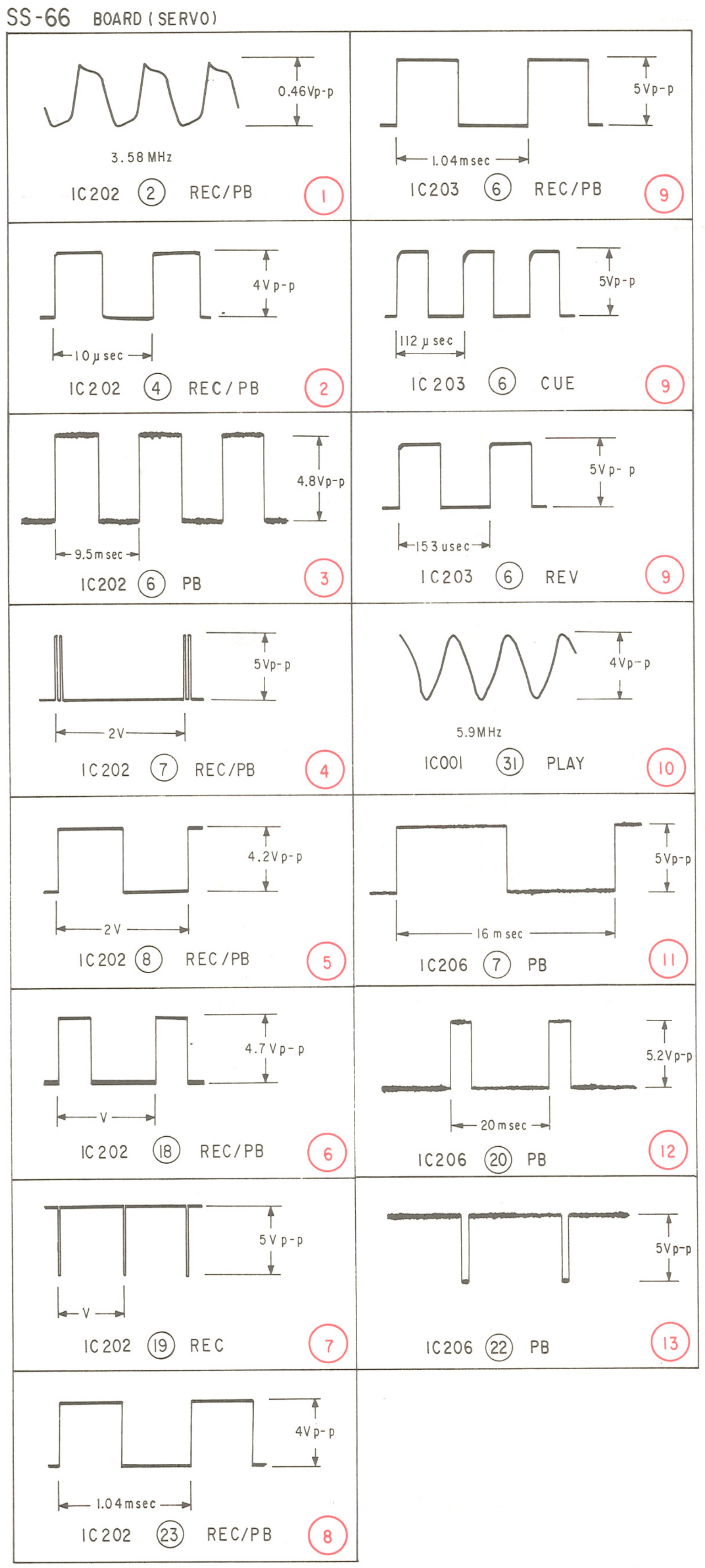
R707 is an adjusting resistor. When it is replaced by occasion of repair, use a part having the same constant as the part which has been installed.


12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
Q104 2SC634SP EQ
Q103 2SC634SP EQ
Q102 2SA1175 EQ
Q016 2SC634SP BUFFER
Q009 2SC634SP SOFT LIMITER
Q010 2SC634SP SOFT LIMITER
CP004
CP005
CP018
LV001
D003,004 1S1587
CE TRAP FL200
LIMITER
IC004
IC004 CX22031 CHROMA EMPHASIS
FL201
FL202
CP008
CARRIER BALANCE
IC003 CX20132 CHROMA PROCESS
Q108 DTC124ES Y COMB SW
Q109 DTC124ES Y COMB SW
D200 RD6.2EB1
SK-17 BOARD
Q801 DTC144ES
Q802 2SC634SP
IC005 CX23064 DIGITAL PROCESS
IC002
LPF
CORR DET
H SYNC INSERT
CLAMP
LIM
REC ON
PB ON
Q021 DTC144ES
Q206 2SA1175 SW
Q205 DTC124ES SW
IC007 HBD1754B ATF SERVO
REC
PB
BUFFER
AGC
GAIN CONT
AMP
IC003
ACC AMP
ACC DET
BURST EMPH/DE
CHROMA CONV
CARRIER INVERT
CARRIER CONV
APC DET
APC DET SW & AMP
ACK DET
ACK
CHROMA INVERT
P.HOLD
F-F
375fH VCO
AFC ID
AFC
CP014
VARIABLE DIVIDER
AFC ETC
INV
SELECTOR
90° SHIFT
LATCH
PS CH1
SEPA RATE
DELAY PULSE GENERATOR
SYNTHESIS GATE
MODE CONTROLLER
IC005
Q258 DTC124ES SWITCH
D204 MC921
X201
Q300 DTC124ES SP/LP SW
TP202
D203 MC921
CP0111/31
PB PAUSE COLOR
APC CORRECTION
BURST ID DET
SEG DET
MAIN SW
FL100
FL101
Q811
CP022
Q101 DTC124ES C/R SW


18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
A
B
C
D
E
F
G
H
I
J
IC004
CX22031
CHROMA EMPHASIS
LIMITER
IC003
CX20132
CHROMA PROCESS
IC005
CX23064
DIGITAL PROCESS
IC006
CX20147
JOG CHROMA PROCESS
SK-17 BOARD
Q108 DTC124ES Y COMB SW
Q109 DTC124ES Y COMB SW
D200 RD6.2EB1
Q801 DTC144ES
Q802 2SC634SP
Q811 DTC124ES
D106, 107 MC931
D103 MC921
D102 MC931
Q206 2SA1175 SW
Q205 DTC124ES SW
Q258 DTC124ES SWITCH
Q300 DTC124ES SP/LP SW
D204 MC921
D203 MC921
PS200
AMP
GAIN CONT
GAIN CONT
LPF
ACC AMP
ACC DET
BURST EMPH/DE
CHROMA CONV
CARRIER INVERT
CARRIER CONV
APC DET
APC DET SW & AMP
CHROMA INVERT
ACK DET
ACK
P.HOLD
X'tal /905
3781H VCO
AFC ID
AFC
F/F B-ID
VARIABLE DIVIDER
AFC ETC
INV
SELECTOR
90° SHIFT
LATCH
PS CH1
SEPA RATE
MODE CONTROLER
SYNTHESIS GATE
DELAY PULSE GENERATOR
CARRIER BALANCE
PB PAUSE COLOR
TH VCO
SW CONTROL
VCO
CLF GENERATION
SEG DET
1/2 L CONTROL
APC CORRE-CTION
BURST ID DET
MAIN SW
AFC DET
W005
REG 5V
GND
TO PS-125 BOARD CN206
(See page 93)
W010
C/R
SP/CP
ME/MP
RF DET
REF V
VIDEO PB MODE
JOG
VIDEO MUTE
SYS RESET
RP PB MODE
REF 4.43MHz (X)
REF 4.43MHz (Y)
TO SS-66 BOARD CN007
(See page 74)
W001
NC
PB ATF(X)
PB ATF(Y)
PB PILOT
TO SS-66 BOARD CN202
(See page 75)
CN012 (BLK)
NC
JOG VD
RF VA SWP
SEL 2
SEL 1
TO SS-66 BOARD CN201
(See page 73)
W009
VIDEO OUT(X)
VIDEO OUT(Y)
REG 5V
LINE/TU
REG 12V
TO TA-29 BOARD CN007
(See page 87)
no mark : REC mode
( ) : PB mode
✻ : Can not be measured

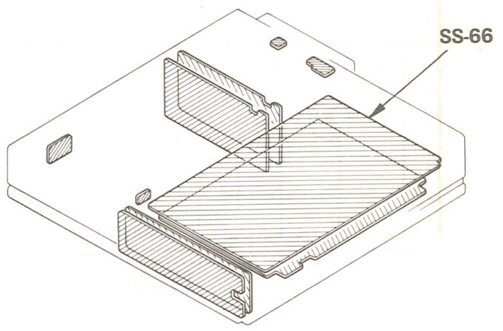
4-4. SS-66 (SERVO/SYSTEM CONTROL) PRINTED WIRING BOARD

– Ref. No. SS-66 BOARD: 2,000 series–



Note:

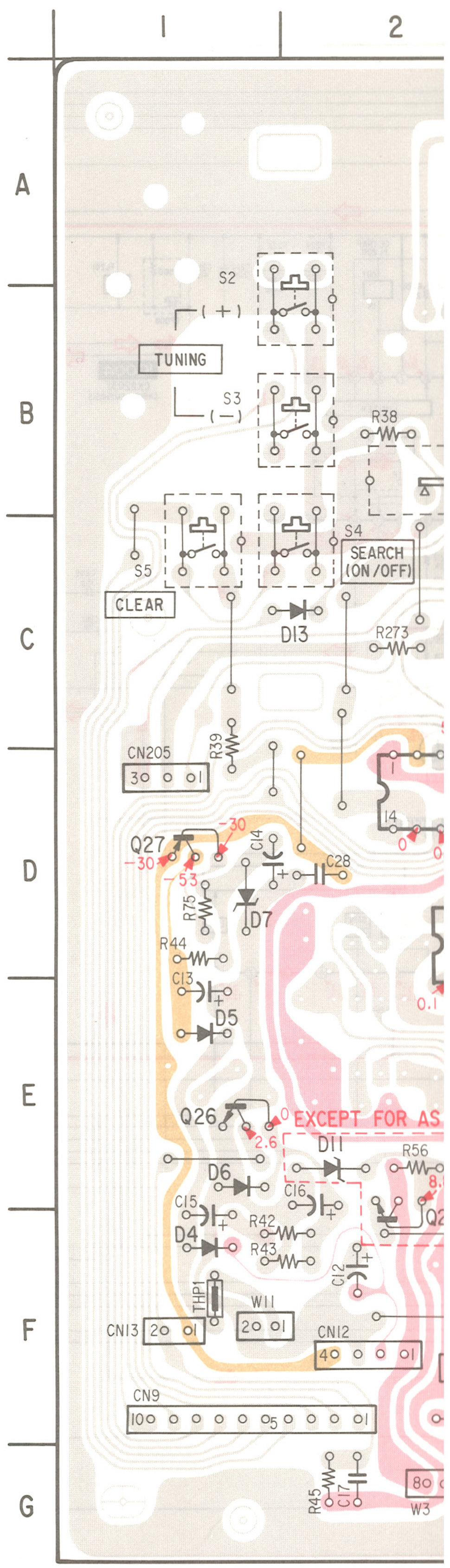
● ○— : indicates a lead wire mounted on the component side.
● ●— : indicates a lead wire mounted on the printed side.
● ▨ : soldering side.
● ▨ : B+ Pattern.
● ▨ : B– Pattern.



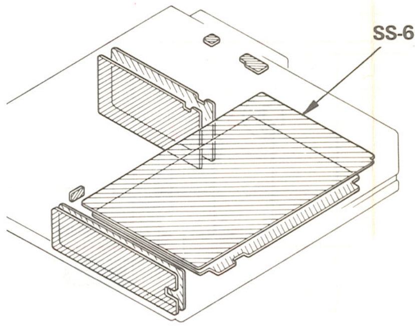
D001	F-3
D002	E-7
D003	C-11
D004	F-1
D005	E-1
D006	E-1
D007	D-1
D009	E-6
D011	E-2
D012	E-7
D013	C-2
D014	D-7
D015	E-5
D016	F-2
D017	E-8
D019	G-2
D020	E-6
D021	A-6
D201	C-9
D202	D-8
IC001	B-5
IC002	D-2
IC003	D-2
IC005	E-7
IC006	D-2
IC202	C-7
IC203	A-7
IC204	E-10
IC205	D-10
IC206	A-9
Q001	D-4
Q002	D-5
Q003	D-4
Q004	D-5
Q005	D-7
Q006	E-5
Q007	F-7
Q008	F-7
Q009	D-9
Q010	E-4
Q011	E-4
Q012	E-5
Q013	E-5
Q014	E-4
Q015	E-4
Q016	F-3
Q017	F-3
Q018	E-3
Q019	F-3
Q023	E-11
Q024	C-11
Q025	E-7
Q026	E-1
Q027	D-1
Q028	E-2
Q029	F-5
Q030	G-10
Q031	F-7
Q210	E-9
Q211	D-9
Q212	D-8
Q213	E-9
Q214	D-8
Q215	D-8
Q216	E-9
Q217	F-9
Q218	E-9
Q219	E-9
Q220	E-9
Q221	D-9
Q222	A-8
Q223	E-9
Q225	F-6
Q226	D-6
Q228	D-10
Q232	E-9

RV001	C-5
RV201	B-7
RV202	B-10
RV203	E-10
RV204	D-11
RV207	B-2
TP001	A-8
TP201	B-7
TP202	A-7
TP203	B-9
TP204	B-7
TP205	B-7
TP210	D-7
TP218	D-8

【SS-66 BOARD】

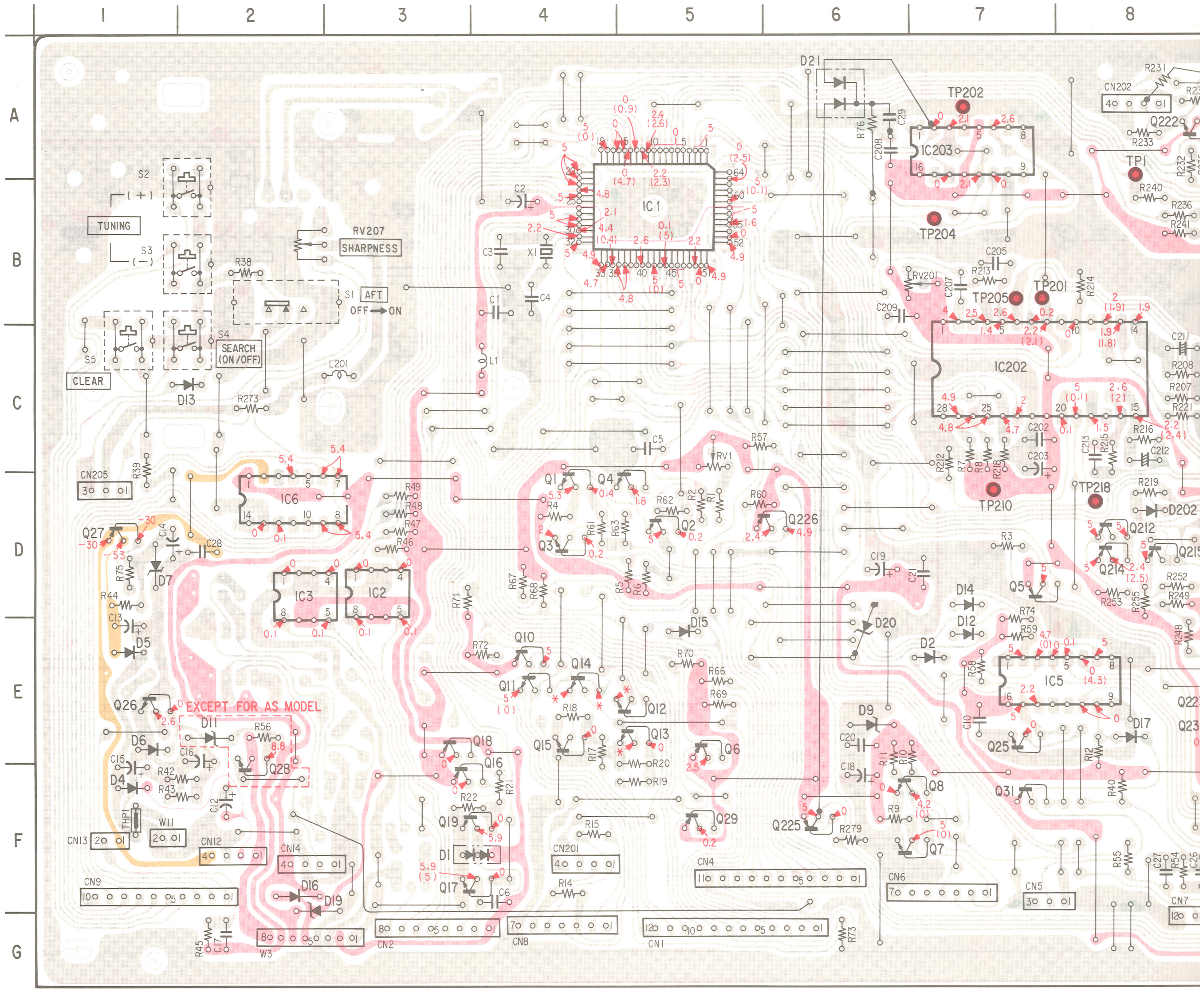

1
2
A
B
C
D
E
F
G
S2
(+)
TUNING
S3
(−)
R38
S5
S4
SEARCH (ON/OFF)
CLEAR
D13
R273
CN205
R39
Q27
C14
C28
D7
R75
R44
C13
D5
Q26
EXCEPT FOR AS
D11
R56
D6
C15
C16
D4
R42
R43
THP1
W11
C12
CN13
CN12
CN9
R45
C17
W3

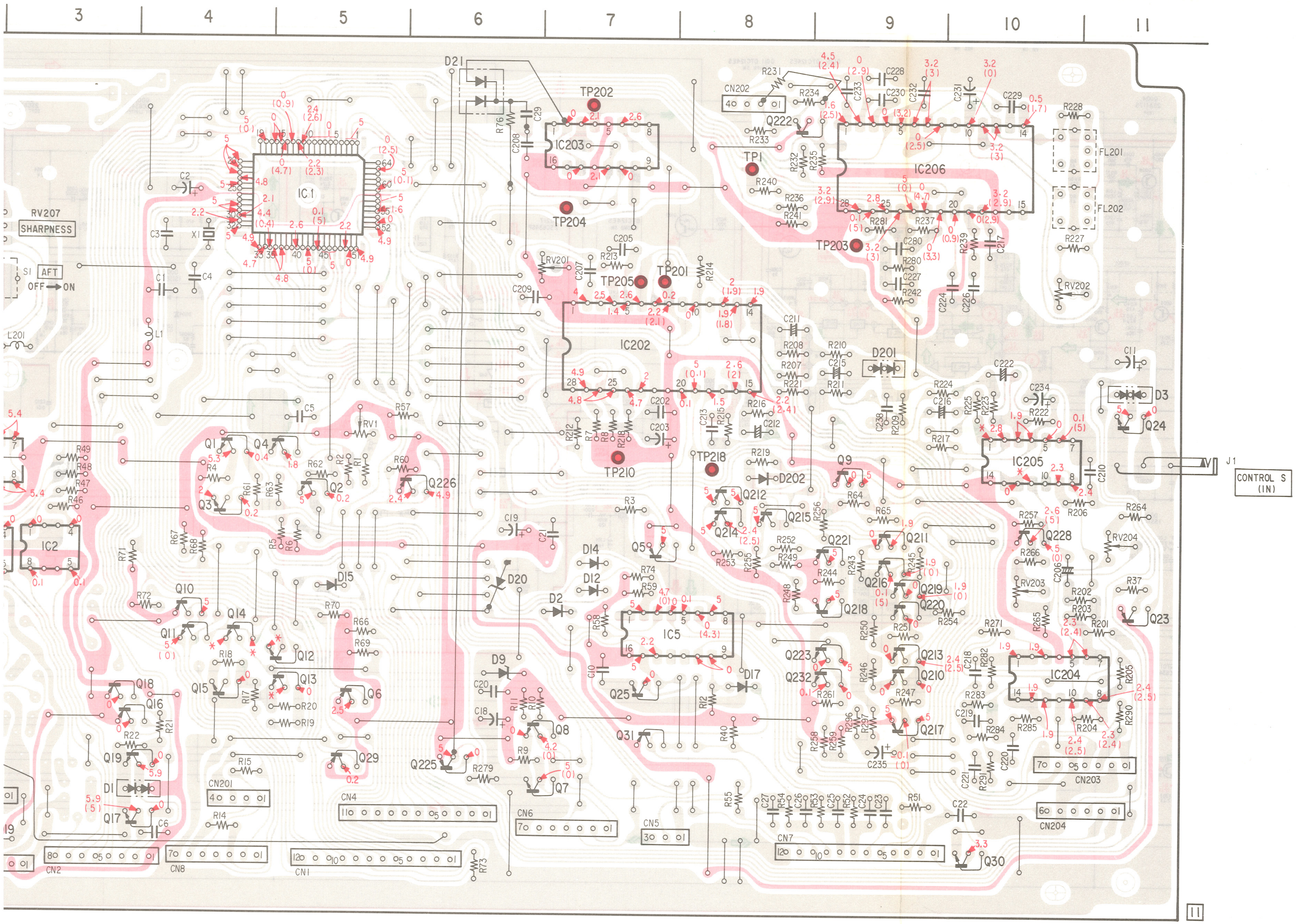
tes a lead wire mounted on the component side.
tes a lead wire mounted on the printed side.
ing side.
ttern.
ttern.



D001	F-3
D002	E-7
D003	C-11
D004	F-1
D005	E-1
D006	E-1
D007	D-1
D009	E-6
D011	E-2
D012	E-7
D013	C-2
D014	D-7
D015	E-5
D016	F-2
D017	E-8
D019	G-2
D020	E-6
D021	A-6
D201	C-9
D202	D-8
IC001	B-5
IC002	D-2
IC003	D-2
IC005	E-7
IC006	D-2
IC202	C-7
IC203	A-7
IC204	E-10
IC205	D-10
IC206	A-9
Q001	D-4
Q002	D-5
Q003	D-4
Q004	D-5
Q005	D-7
Q006	E-5
Q007	F-7
Q008	F-7
Q009	D-9
Q010	E-4
Q011	E-4
Q012	E-5
Q013	E-5
Q014	E-4
Q015	E-4
Q016	F-3
Q017	F-3
Q018	E-3
Q019	F-3
Q023	E-11
Q024	C-11
Q025	E-7
Q026	E-1
Q027	D-1
Q028	E-2
Q029	F-5
Q030	G-10
Q031	F-7
Q210	E-9
Q211	D-9
Q212	D-8
Q213	E-9
Q214	D-8
Q215	D-8
Q216	E-9
Q217	F-9
Q218	E-9
Q219	E-9
Q220	E-9
Q221	D-9
Q222	A-8
Q223	E-9
Q225	F-6
Q226	D-6
Q228	D-10
Q232	E-9
RV001	C-5
RV201	B-7
RV202	B-10
RV203	E-10
RV204	D-11
RV207	B-2
TP001	A-8
TP201	B-7
TP202	A-7
TP203	B-9
TP204	B-7
TP205	B-7
TP210	D-7
TP218	D-8

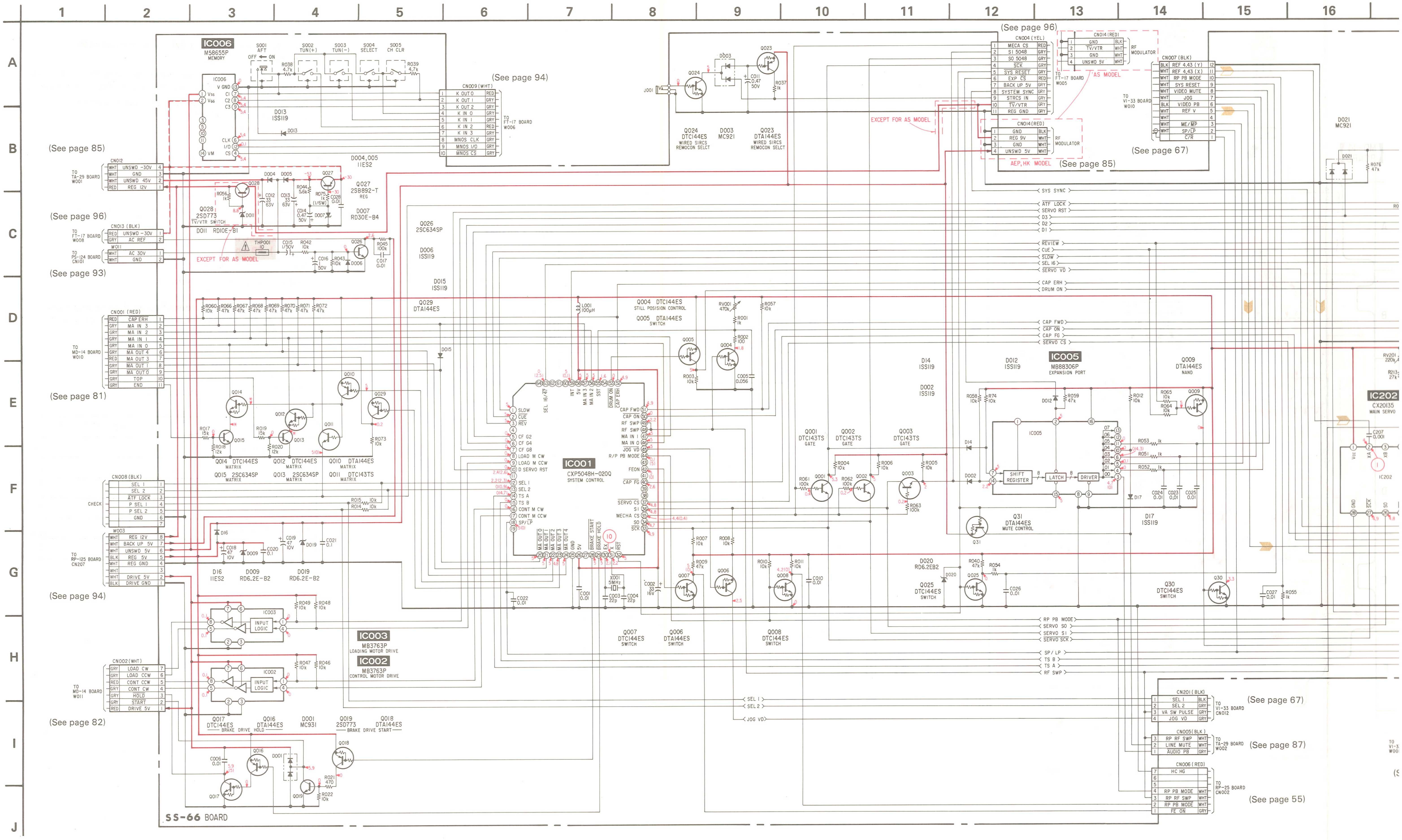
【SS-66 BOARD】


1
2
3
4
5
6
7
8
A
B
C
D
E
F
G
TUNING
S2
S3
S5
CLEAR
S4
SEARCH (ON/OFF)
S1
AFT
OFF → ON
RV207
SHARPNESS
R38
L201
R273
D13
IC1
X1
C1
C2
C3
C4
L1
D21
IC203
TP202
TP204
TP1
CN202
Q222
TP205
TP201
RV201
IC202
TP210
TP218
D202
Q212
Q214
Q215
CN205
Q27
D7
C28
IC6
IC3
IC2
Q1
Q4
Q2
Q3
Q226
RV1
Q10
Q11
Q14
Q12
Q13
Q15
Q16
Q18
Q19
Q17
D1
D16
D19
Q26
EXCEPT FOR AS MODEL
D11
Q28
D6
D4
D5
THP1
W11
CN13
CN12
CN14
CN9
W3
CN2
CN8
CN1
CN201
CN4
Q29
Q6
Q225
D9
D20
D2
D14
D12
Q5
IC5
Q25
Q8
Q7
Q31
D17
CN6
CN5
CN7
D15

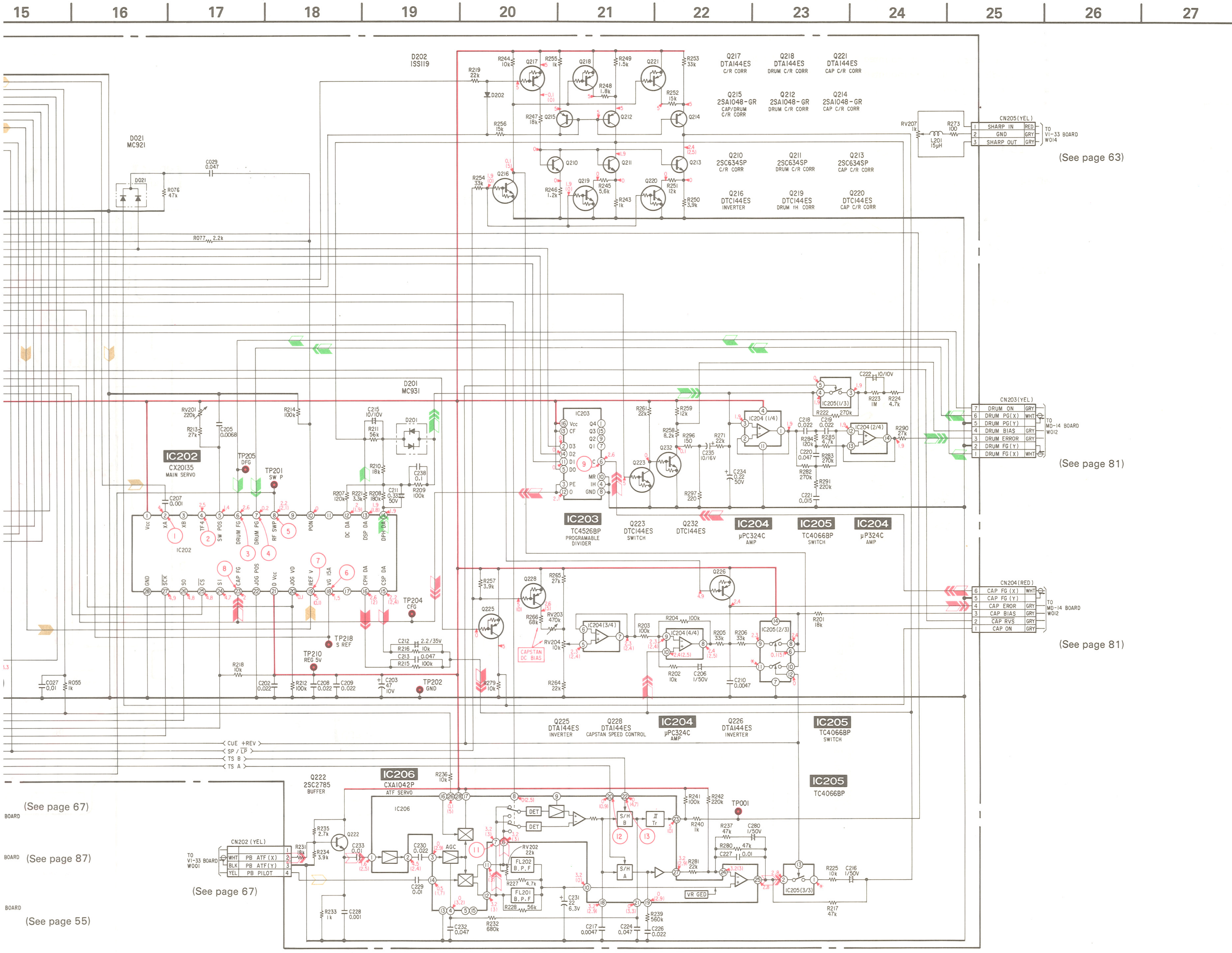

3
4
5
6
7
8
9
10
11
RV207
SHARPNESS
S1
AFT
OFF
ON
L201
IC1
X1
IC2
IC5
IC202
IC203
IC204
IC205
IC206
D21
D201
D202
D3
TP1
TP201
TP202
TP203
TP204
TP205
TP210
TP218
FL201
FL202
RV201
RV202
RV203
RV204
RV1
J1
CONTROL S
(IN)
CN1
CN2
CN4
CN5
CN6
CN7
CN8
CN201
CN202
CN203
CN204
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
Q11
Q12
Q13
Q14
Q15
Q16
Q17
Q18
Q19
Q23
Q24
Q25
Q29
Q30
Q31
Q210
Q211
Q212
Q213
Q214
Q215
Q216
Q217
Q218
Q219
Q220
Q221
Q222
Q223
Q225
Q226
Q228
Q232
D1
D2
D9
D12
D14
D15
D17
D20
11

SS-66 (SERVO/SYSTEM CONTROL) SCHEMATIC DIAGRAM

– Ref. No. SS-66 BOARD: 2,000 series –



1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
IC006
M58655P
MEMORY
S001 AFT
S002 TUN(+)
S003 TUN(−)
S004 SELECT
S005 CH CLR
(See page 94)
CN009 (WHT)
K OUT 0
K OUT 1
K OUT 2
K IN 0
K IN 1
K IN 2
K IN 3
MNOS CLK
MNOS I/O
MNOS CS
TO FT-17 BOARD W006
D013 ISS119
D004, 005 11ES2
(See page 85)
CN012
TO TA-29 BOARD W001
UNSWD −30V
GND
UNSWD 45V
REG 12V
Q028 2SD773 TV/VTR SWITCH
Q027 2SB892-T REG
D007 RD30E-B4
D011 RD10E-B1
(See page 96)
CN013 (BLK)
TO FT-17 BOARD W008
UNSWD −30V
AC REF
TO PS-124 BOARD CN101
AC 30V
GND
(See page 93)
THP001
EXCEPT FOR AS MODEL
Q026 2SC634SP
D006 ISS119
D015 ISS119
Q029 DTA144ES
CN001 (RED)
TO MD-14 BOARD W010
CAP ERH
MA IN 3
MA IN 2
MA IN 1
MA IN 0
MA OUT 4
MA OUT 3
MA OUT 1
MA OUT 0
TOP
END
(See page 81)
Q014 DTC144ES MATRIX
Q012 DTC144ES MATRIX
Q010 DTA144ES MATRIX
Q015 2SC634SP MATRIX
Q013 2SC634SP MATRIX
Q011 DTC143TS MATRIX
CN008 (BLK)
CHECK
SEL 1
SEL 2
ATF LOCK
P SEL 1
P SEL 2
GND
W003
TO RP-125 BOARD CN207
REG 12V
BACK UP 5V
UNSWD 5V
REG 5V
REG GND
DRIVE 5V
DRIVE GND
(See page 94)
D16 11ES2
D009 RD6.2E-B2
D019 RD6.2E-B2
IC003 MB3763P LOADING MOTOR DRIVE
IC002 MB3763P CONTROL MOTOR DRIVE
INPUT LOGIC
CN002 (WHT)
TO MD-14 BOARD W011
LOAD CW
LOAD CCW
CONT CCW
CONT CW
HOLD
START
DRIVE 5V
(See page 82)
Q017 DTC144ES BRAKE DRIVE HOLD
Q016 DTA144ES
D001 MC931
Q019 2SD773 BRAKE DRIVE START
Q018 DTA144ES
SS-66 BOARD
IC001
CXP5048H-020Q
SYSTEM CONTROL
SLOW
CUE
REV
CF G2
CF G4
CF G8
LOAD M CW
LOAD M CCW
D SERVO RST
SEL 1
SEL 2
TS A
TS B
CONT M CW
CONT M CCW
SP/LP
CAP FWD
CAP ON
RF SWP
MA IN 1
MA IN 0
JOG VD
R/P PB MODE
FEON
CAP FG
SERVO CS
SI
MECHA CS
SO
SCK
X001 5MHz
J001
Q024 DTC144ES WIRED SIRCS REMOCON SELCT
D003 MC921
Q023 DTA144ES WIRED SIRCS REMOCON SELCT
Q004 DTC144ES STILL POSISION CONTROL
Q005 DTA144ES SWITCH
L001 100µH
RV001 470k
(See page 96)
CN004 (YEL)
MECA CS
SI 5048
SO 5048
SCK
SYS RESET
EXP CS
BACK UP 5V
SYSTEM SYNC
STRCS IN
TV/VTR
REG GND
TO FT-17 BOARD W005
CN014 (RED)
GND
TV/VTR
UNSWD 5V
RF MODULATOR
AS MODEL
EXCEPT FOR AS MODEL
REG 9V
AEP, HK MODEL
(See page 85)
CN007 (BLK)
TO VI-33 BOARD W010
REF 4.43 (Y)
REF 4.43 (X)
RP PB MODE
SYS RESET
VIDEO MUTE
JOG
VIDEO PB
REF V
ME/MP
SP/LP
C/R
(See page 67)
D021 MC921
SYS SYNC
ATF LOCK
SERVO RST
D3
D2
D1
REVIEW
CUE
SLOW
SEL 16
SERVO VD
CAP ERH
DRUM ON
CAP FWD
CAP ON
CAP FG
SERVO CS
IC005
MB88306P
EXPANSION PORT
SHIFT REGISTER
LATCH
DRIVER
D14 ISS119
D012 ISS119
D002 ISS119
Q009 DTA144ES NAND
Q001 DTC143TS GATE
Q002 DTC143TS GATE
Q003 DTC143TS GATE
Q31 DTA144ES MUTE CONTROL
D17 ISS119
IC202 CX20135 MAIN SERVO
D020 RD6.2EB2
Q025 DTC144ES SWITCH
Q30 DTC144ES SWITCH
Q007 DTC144ES SWITCH
Q006 DTA144ES SWITCH
Q008 DTC144ES SWITCH
RP PB MODE
SERVO SO
SERVO SI
SERVO SCK
SP/LP
TS B
TS A
RF SWP
SEL 1
SEL 2
JOG VD
CN201 (BLK)
TO VI-33 BOARD CN012
VA SW PULSE
JOG VD
(See page 67)
CN005 (BLK)
TO TA-29 BOARD W002
RP RF SWP
LINE MUTE
AUDIO PB
(See page 87)
CN006 (RED)
TO RP-25 BOARD CN002
HC HG
RP PB MODE
RP RF SWP
FE ON
(See page 55)


15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
A
B
C
D
E
F
G
H
I
J
IC202
CX20135
MAIN SERVO
IC203
TC4526BP
PROGRAMABLE DIVIDER
IC204
μPC324C
AMP
IC205
TC4066BP
SWITCH
IC206
CXA1042P
ATF SERVO
Q217 DTA144ES C/R CORR
Q218 DTA144ES DRUM C/R CORR
Q221 DTA144ES CAP C/R CORR
Q215 2SA1048-GR CAP/DRUM C/R CORR
Q212 2SA1048-GR DRUM C/R CORR
Q214 2SA1048-GR CAP C/R CORR
Q210 2SC634SP C/R CORR
Q211 2SC634SP DRUM C/R CORR
Q213 2SC634SP CAP C/R CORR
Q216 DTC144ES INVERTER
Q219 DTC144ES DRUM 1H CORR
Q220 DTC144ES CAP C/R CORR
Q223 DTC144ES SWITCH
Q232 DTC144ES
Q225 DTA144ES INVERTER
Q228 DTA144ES CAPSTAN SPEED CONTROL
Q226 DTA144ES INVERTER
Q222 2SC2785 BUFFER
D021 MC921
D201 MC931
D202 1SS119
CN205(YEL)
TO VI-33 BOARD W014
(See page 63)
CN203(YEL)
TO MD-14 BOARD W012
(See page 81)
CN204(RED)
TO MD-14 BOARD W012
(See page 81)
CN202(YEL)
TO VI-33 BOARD W001
(See page 67)
(See page 67)
(See page 87)
(See page 55)
TP201 SW P
TP205 DFG
TP204 CFG
TP218 S REF
TP210 REG 5V
TP202 GND
TP001
CUE +REV
SP / LP
TS B
TS A
CAPSTAN DC BIAS

Note:

- All resistors are in ohms, 1/6W unless otherwise noted. kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics. and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ☐ : panel designation.
- ☐ : adjustment for repair.
- ▬ : B + bus.
- ‑‑‑ : B – bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a color-bar signal input.
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltage variations may be noted due to normal production tolerances.
- no mark: REC mode
  ( ): PB mode
- Marked "✱" is not able to measure the voltage of it's position.
- Circled numbers refer to waveforms.

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

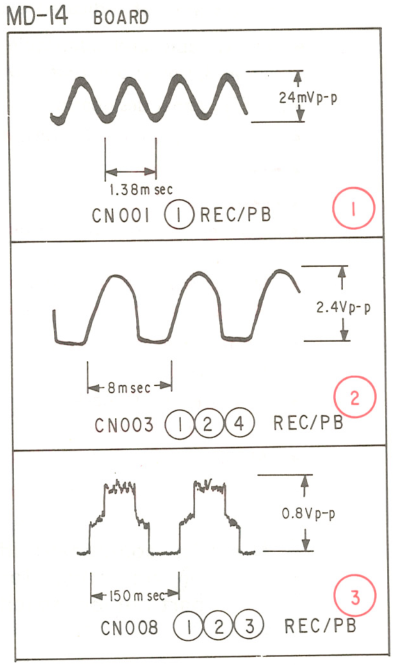
When indicating parts by reference number, please include the board name.

Signal path

	REC	REC/PB	PB
Drum speed servo		➤	
Drum phase servo		➤➤	
Drum servo (speed and phase)		➤➤➤	
Capstan speed servo		➤	
Capstan phase servo	➤➤		▷➤
Capstan servo (speed and phase)		➤➤➤	
Ref. signal	➤	➤	▷

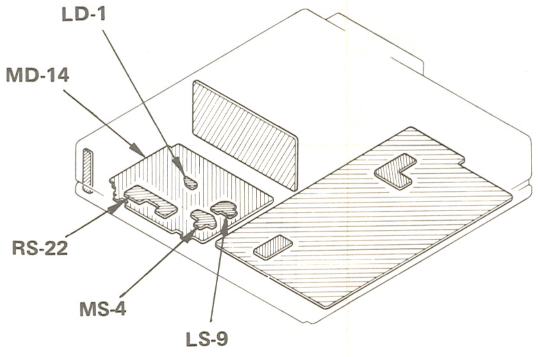
4-5. MD-14 (MOTOR DRIVE), RS-22 (REEL SENSOR), TE-1, TE-7 (TAPE END SENSOR), MS-4 (MODE SWITCH), LS-9 (LOADING SWITCH), LD-1 (TAPE SENSOR) PRINTED WIRING BOARDS

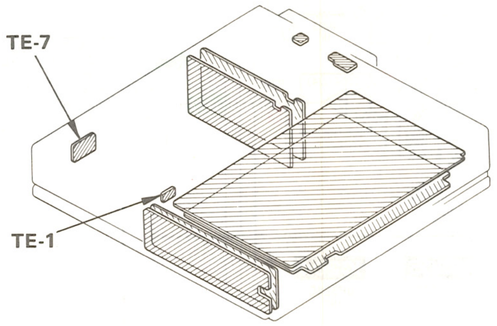
– Ref. No. MD-14 BOARD: 4,000 series, RS-22 BOARD: 4,000 series, TE-1/7 BOARD: 9,000 series, MS-4 BOARD: 4,000 series, LS-9 BOARD: 4,000 series, LD-1 BOARD: 9,000 series –



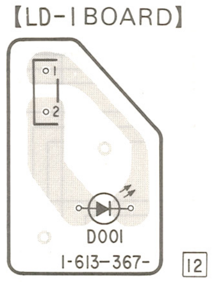
Note:

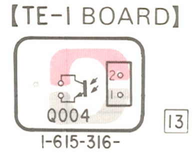
- ○— : indicates a lead wire mounted on the component side.
- ●— : indicates a lead wire mounted on the printed side.
- ▨ : soldering side.
- ▨ : B+ Pattern.

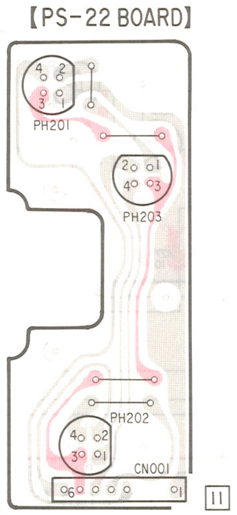

LD-1
MD-14
RS-22
MS-4
LS-9

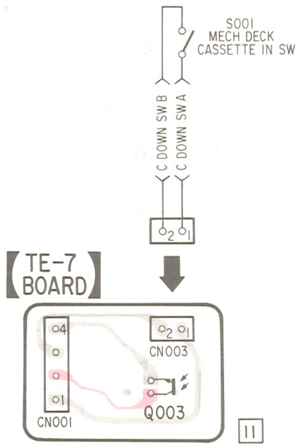


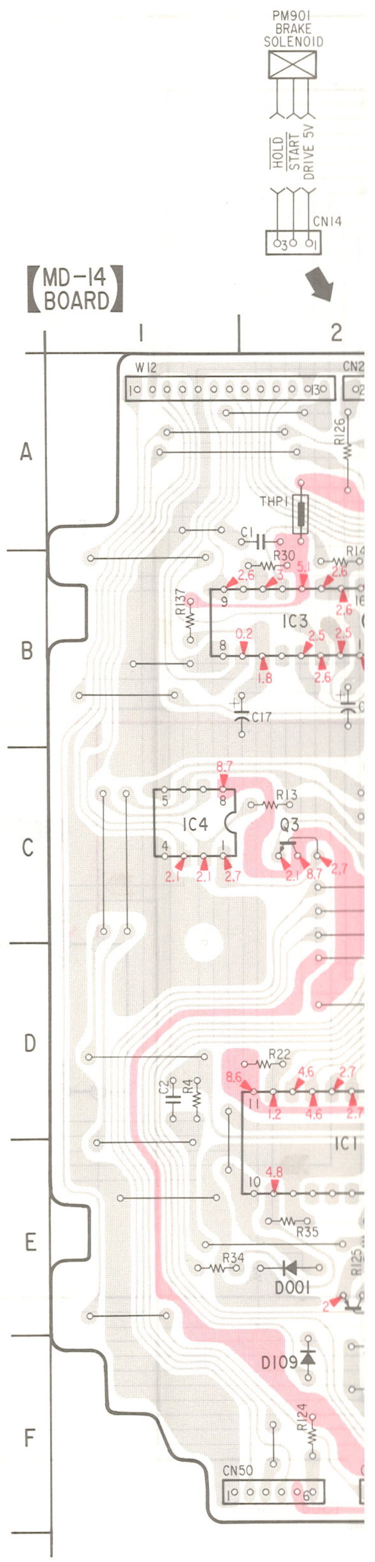
D001	E-2
D101	B-3
D102	B-3
D103	B-4
D104	B-3
D105	B-3
D106	B-3
D107	A-4
D108	A-4
D109	F-2
IC001	E-2
IC002	E-4
IC003	B-2
IC004	C1
Q002	F-3
Q003	C-2
Q004	F-4
Q101	C-3
Q102	B-4
Q103	B-4
Q104	C-3
Q105	C-4
Q106	B-4
Q108	D-4
Q109	E-2
Q110	D-5


【LD-1 BOARD】
1
2
D001
1-613-367-
12

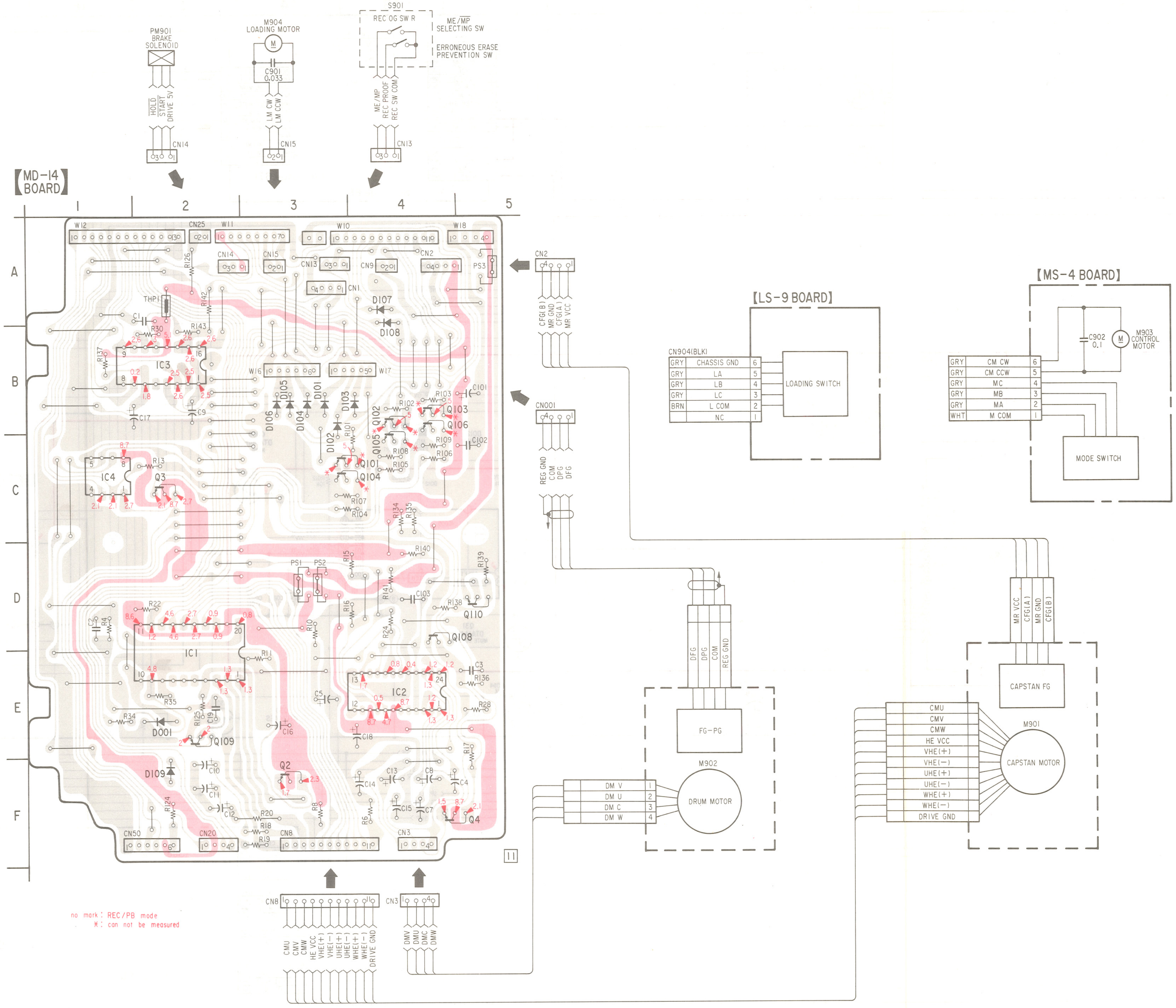

【TE-1 BOARD】
Q004
1-615-316-
13


【PS-22 BOARD】
PH201
PH203
PH202
CN001
11


S001
MECH DECK
CASSETTE IN SW
C DOWN SW B
C DOWN SW A
【TE-7 BOARD】
CN003
CN001
Q003
11


PM901
BRAKE
SOLENOID
HOLD
START
DRIVE 5V
CN14
【MD-14 BOARD】
1
2
A
B
C
D
E
F
W12
CN2
R126
THP1
C1
R30
IC3
R137
C17
IC4
R13
Q3
R22
IC1
R35
R34
D001
D109
R124
CN50

no mark : REC/PB mode
* : can not be measured


PM901 BRAKE SOLENOID
HOLD
START
DRIVE 5V
CN14
M904 LOADING MOTOR
C901 0.033
LM CW
LM CCW
CN15
S901
REC OG SW R
ME/MP SELECTING SW
ERRONEOUS ERASE PREVENTION SW
ME/MP
REC PROOF
REC SW COM
CN13
MD-14 BOARD
1
2
3
4
5
A
B
C
D
E
F
IC1
IC2
IC3
IC4
CN2
CFG(B)
MR GND
CFG(A)
MR VCC
CN001
REG GND
COM
DPG
DFG
LS-9 BOARD
CN904(BLK)
CHASSIS GND
LA
LB
LC
L COM
NC
LOADING SWITCH
MS-4 BOARD
C902 0.1
M903 CONTROL MOTOR
CM CW
CM CCW
MC
MB
MA
M COM
MODE SWITCH
FG-PG
M902
DRUM MOTOR
DM V
DM U
DM C
DM W
CAPSTAN FG
M901
CAPSTAN MOTOR
CMU
CMV
CMW
HE VCC
VHE(+)
VHE(−)
UHE(+)
UHE(−)
WHE(+)
WHE(−)
DRIVE GND
CN8
CN3
DMV
DMU
DMC
DMW

no mark : REC/PB mode
*: can not be measured

Note:

- All resistors are in ohms, 1/6W unless otherwise noted. kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics. and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ☐ : adjustment for repair.
- ━ : B + bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a color-bar signal input.
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltage variations may be noted due to normal production tolerances.
- no mark: REC mode
  ( ): PB mode
- Marked "*" is not able to measure the voltage of it's position.
- Circled numbers refer to waveforms.

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

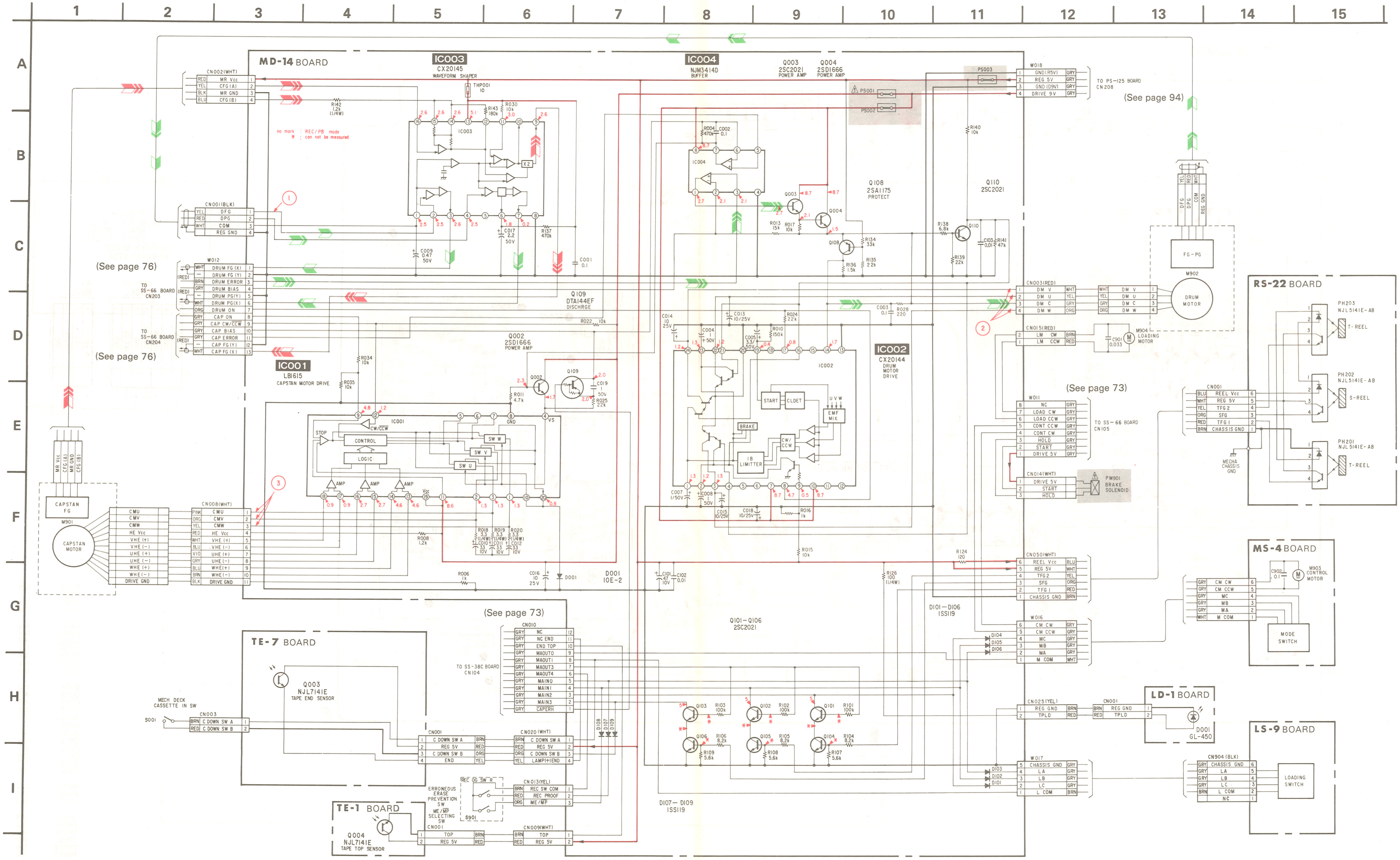
When indicating parts by reference number, please include the board name.

Signal path

	REC	REC/PB	PB
Drum speed servo		➤	
Drum phase servo		➤➤	
Drum servo (speed and phase)		➤➤➤	
Capstan speed servo		➤	
Capstan phase servo	➤➤		▷▷
Capstan servo (speed and phase)		➤➤➤	

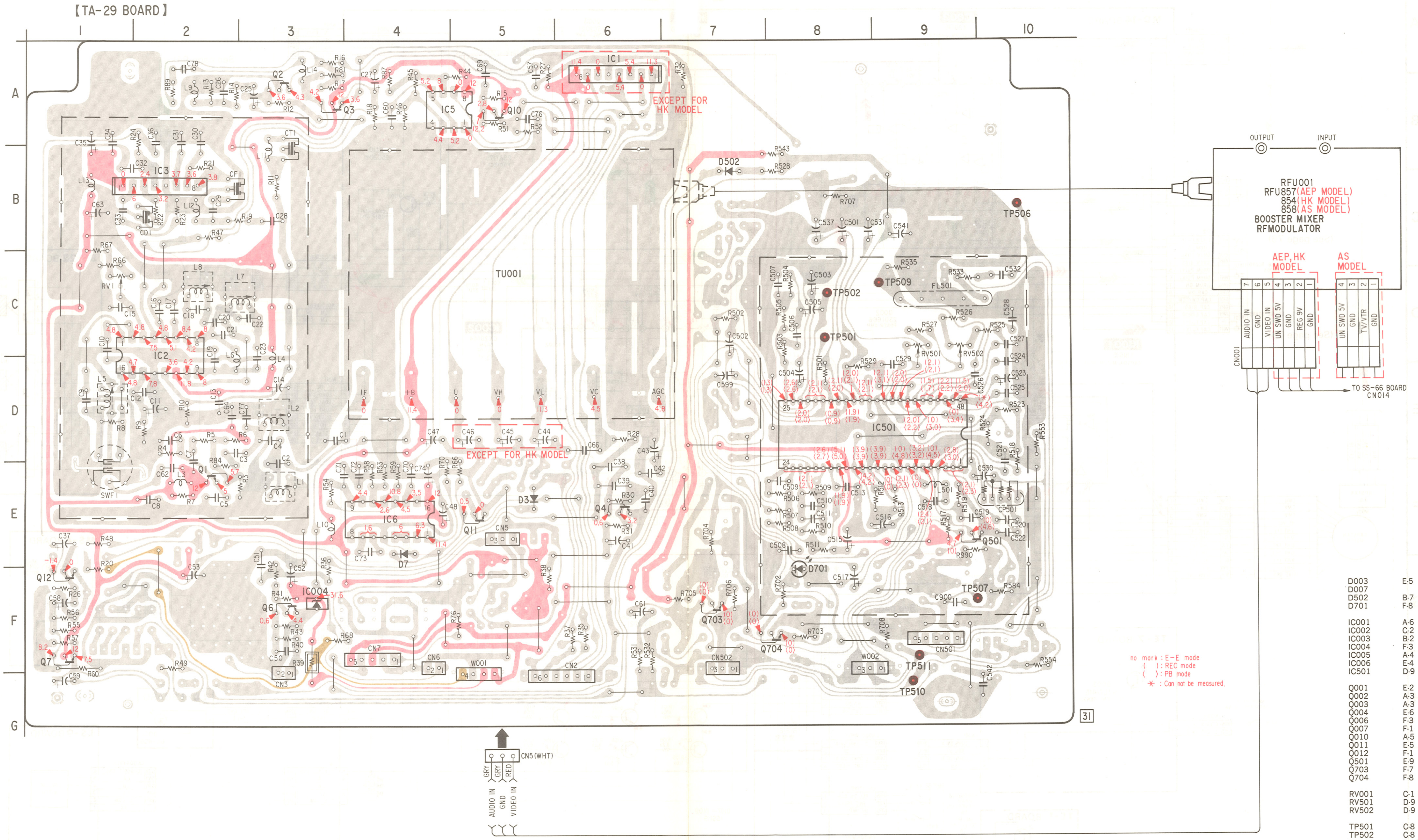
MD-14 (MOTOR DRIVE), RS-22 (REEL SENSOR), TE-1, TE-7 (TAPE END SENSOR), MS-4 (MODE SWITCH), LS-9 (LOADING SWITCH), LD-1 (TAPE SENSOR) SCHEMATIC DIAGRAM

– Ref. No. MD-14 BOARD: 4,000 series, RS-22 BOARD: 4,000 series, TE-1/7 BOARD: 9,000 series, MS-4 BOARD: 4,000 series, LS-9 BOARD: 4,000 series, LD-1 BOARD: 9,000 series –


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
A B C D E F G H I
MD-14 BOARD
IC003 CX20145 WAVEFORM SHAPER
IC004 NJM3414D BUFFER
Q003 2SC2021 POWER AMP
Q004 2SD1666 POWER AMP
PS001
PS002
PS003
W018
GND (R5V)
REG 5V
GND (D9V)
DRIVE 9V
TO PS-125 BOARD CN208
(See page 94)
CN002 (WHT)
MR Vcc
CFG (A)
MR GND
CFG (B)
THP001 10
R142 1.2k (1/4W)
R143 180k
R030 10k
no mark : REC/PB mode
* : can not be measured
CN001 (BLK)
DFG
DPG
COM
REG GND
Q108 2SA1175 PROTECT
Q110 2SC2021
(See page 76)
TO SS-66 BOARD CN203
TO SS-66 BOARD CN204
W012
DRUM FG (X)
DRUM FG (Y)
DRUM ERROR
DRUM BIAS
DRUM PG (Y)
DRUM PG (X)
DRUM ON
CAP ON
CAP CW/CCW
CAP BIAS
CAP ERROR
CAP FG (Y)
CAP FG (X)
Q109 DTA144EF DISCHRGE
Q002 2SD1666 POWER AMP
IC001 LB1615 CAPSTAN MOTOR DRIVE
STOP
CONTROL
LOGIC
CW/CCW
SW W
SW V
SW U
AMP
IC002 CX20144 DRUM MOTOR DRIVE
START
CLDET
BRAKE
EMF MIX
IB LIMITTER
CW/CCW
CN003 (RED)
DM V
DM U
DM C
DM W
M902 DRUM MOTOR
FG-PG
CN015 (RED)
LM CW
LM CCW
M904 LOADING MOTOR
(See page 73)
W011
NC
LOAD CW
LOAD CCW
CONT CW
CONT CCW
HOLD
START
DRIVE 5V
TO SS-66 BOARD CN105
CN014 (WHT)
DRIVE 5V
START
HOLD
PM901 BRAKE SOLENOID
RS-22 BOARD
PH203 NJL5141E-AB T-REEL
PH202 NJL5141E-AB S-REEL
PH201 NJL5141E-AB T-REEL
CN001
REEL Vcc
REG 5V
TFG 2
SFG
TFG 1
CHASSIS GND
MECHA CHASSIS GND
CAPSTAN FG
M901 CAPSTAN MOTOR
CN008 (WHT)
CMU
CMV
CMW
HE Vcc
VHE (+)
VHE (−)
UHE (+)
UHE (−)
WHE (+)
WHE (−)
DRIVE GND
D001 10E-2
CN050 (WHT)
REEL Vcc
REG 5V
TFG 2
SFG
TFG 1
CHASSIS GND
MS-4 BOARD
M903 CONTROL MOTOR
CM CW
CM CCW
MC
MB
MA
M COM
MODE SWITCH
W016
D101–D106 1SS119
Q101–Q106 2SC2021
(See page 73)
CN010
NC
NC END
END TOP
MAOUTO
MAOUT1
MAOUT3
MAOUT4
MAIN0
MAIN1
MAIN2
MAIN3
CAPERH
TO SS-38C BOARD CN104
TE-7 BOARD
Q003 NJL7141E TAPE END SENSOR
MECH DECK CASSETTE IN SW
S001
CN003
C DOWN SW A
C DOWN SW B
CN001
C DOWN SW A
REG 5V
C DOWN SW B
END
CN020 (WHT)
LAMP (+) END
ERRONEOUS ERASE PREVENTION SW
ME/MP SELECTING SW
REC OG SW R
S901
CN013 (YEL)
REC SW COM
REC PROOF
ME/MP
TE-1 BOARD
Q004 NJL7141E TAPE TOP SENSOR
CN001
TOP
REG 5V
CN009 (WHT)
D107–D109 1SS119
CN025 (YEL)
REG GND
TPLD
LD-1 BOARD
D001 GL-450
LS-9 BOARD
W017
CN904 (BLK)
CHASSIS GND
LA
LB
LC
L COM
NC
LOADING SWITCH

4-6. TA-29 (TUNER/AUDIO) PRINTED WIRING BOARD

– Ref. No. TA-29 BOARD: 5,000 series –

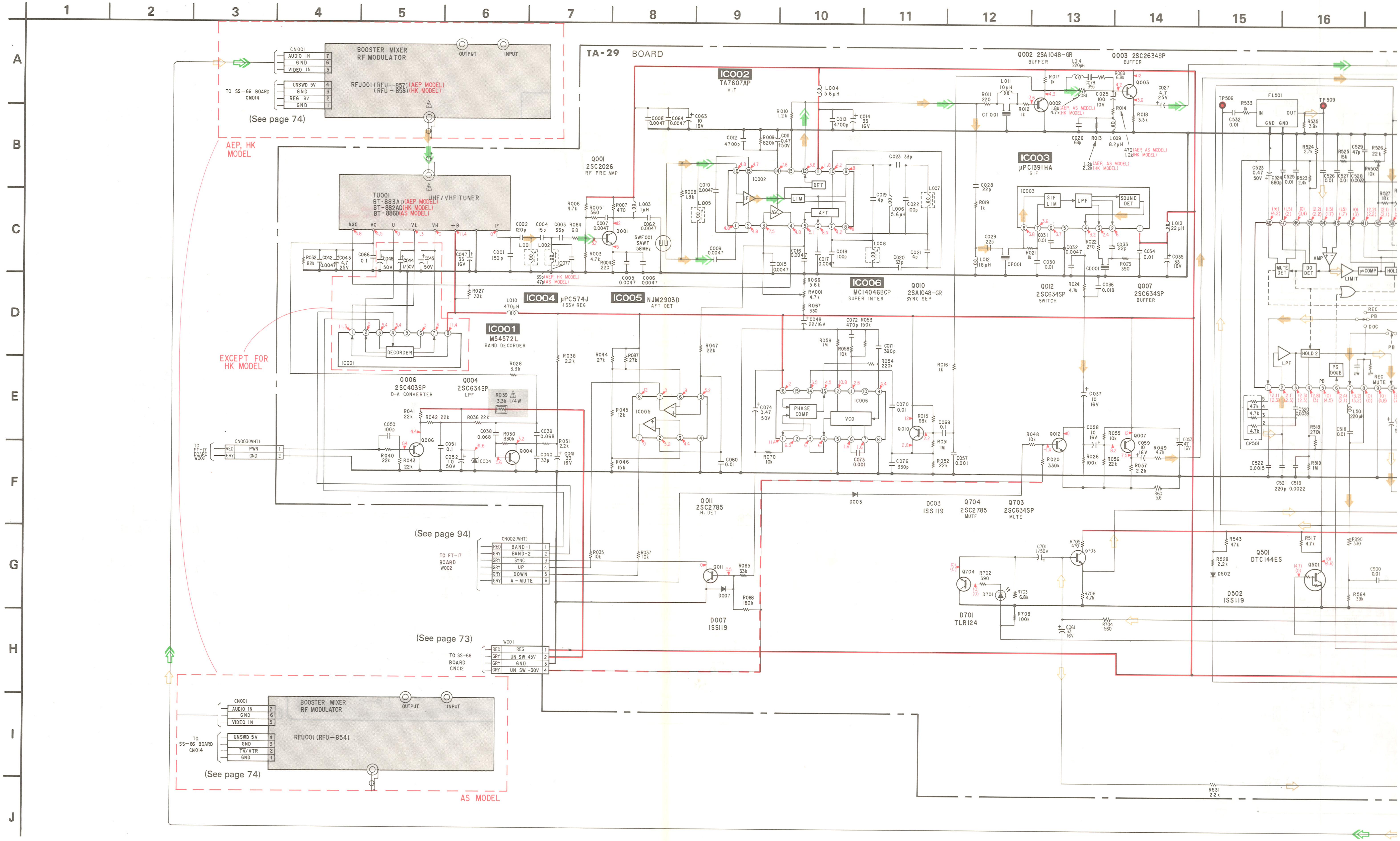

【TA-29 BOARD】
1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
G
IC1
IC2
IC3
IC5
IC6
IC501
IC004
TU001
Q1
Q2
Q3
Q4
Q6
Q7
Q10
Q11
Q12
Q501
Q703
Q704
D3
D7
D502
D701
EXCEPT FOR HK MODEL
IF
+B
U
VH
VL
VC
AGC
TP501
TP502
TP506
TP507
TP509
TP510
TP511
FL501
CN501
CN502
CN2
CN3
CN5
CN6
CN7
W001
W002
RV1
RV501
RV502
SWF1
OUTPUT
INPUT
RFU001
RFU857(AEP MODEL)
854(HK MODEL)
858(AS MODEL)
BOOSTER MIXER
RFMODULATOR
AEP,HK MODEL
AS MODEL
CN001
AUDIO IN
GND
VIDEO IN
UN SWD 5V
GND
REG 9V
GND
UN SWD 5V
GND
TV/VTR
GND
TO SS-66 BOARD CN014
CN5(WHT)
GRY
GRY
RED
AUDIO IN
GND
VIDEO IN
31

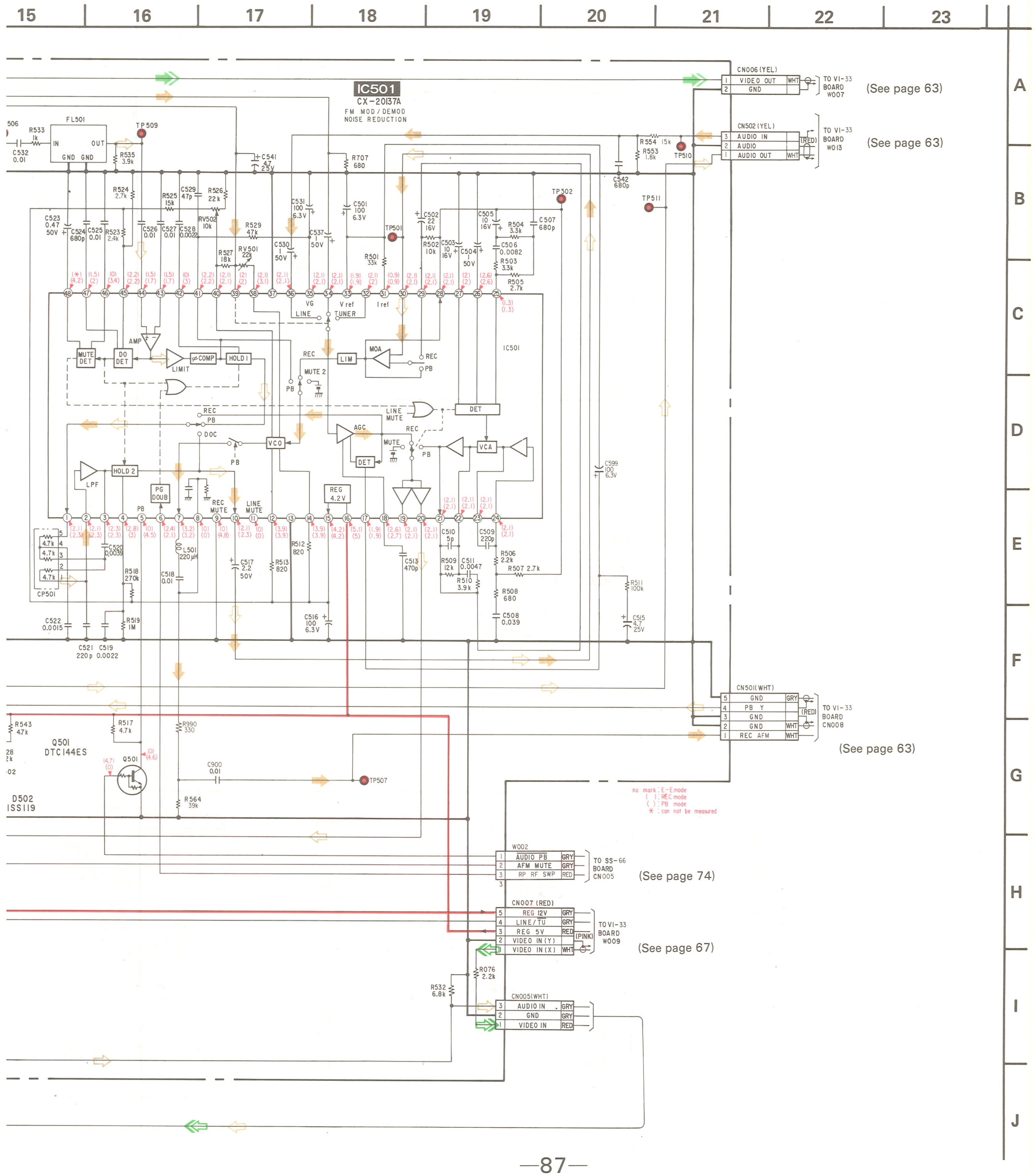
no mark : E–E mode
( ) : REC mode
〈 〉 : PB mode
✳ : Can not be measured.

D003	E-5
D007	
D502	B-7
D701	F-8
IC001	A-6
IC002	C-2
IC003	B-2
IC004	F-3
IC005	A-4
IC006	E-4
IC501	D-9
Q001	E-2
Q002	A-3
Q003	A-3
Q004	E-6
Q006	F-3
Q007	F-1
Q010	A-5
Q011	E-5
Q012	F-1
Q501	E-9
Q703	F-7
Q704	F-8
RV001	C-1
RV501	D-9
RV502	D-9
TP501	C-8
TP502	C-8
TP506	B-10
TP507	F-9
TP509	C-9
TP510	G-9
TP511	F-9

TA-29 (TUNER/AUDIO) SCHEMATIC DIAGRAM

– Ref. No. TA-29 BOARD: 5,000 series –


TA-29 BOARD
BOOSTER MIXER RF MODULATOR
RFU001 (RFU–857) (AEP MODEL)
(RFU–858) (HK MODEL)
(See page 74)
AEP, HK MODEL
TO SS-66 BOARD CN014
CN001
AUDIO IN
GND
VIDEO IN
UNSWD 5V
REG 9V
OUTPUT
INPUT
TU001
BT-883AD (AEP MODEL)
BT-882AD (HK MODEL)
BT-886D (AS MODEL)
UHF/VHF TUNER
AGC
VC
U
VL
VH
+B
IF
IC001
M54572L
BAND DECORDER
DECORDER
EXCEPT FOR HK MODEL
Q001
2SC2026
RF PRE AMP
SWF001
SAWF
58MHz
IC002
TA7607AP
VIF
IF
AGC
DET
LIM
AFT
IC003
μPC1391HA
SIF
SIF LIM
LPF
SOUND DET
IC004
μPC574J
+33V REG
IC005
NJM2903D
AFT DET
IC006
MC14046BCP
SUPER INTER
PHASE COMP
VCO
Q002 2SA1048-GR
BUFFER
Q003 2SC2634SP
BUFFER
Q004
2SC634SP
LPF
Q006
2SC403SP
D-A CONVERTER
Q007
2SC634SP
BUFFER
Q010
2SA1048-GR
SYNC SEP
Q011
2SC2785
H. DET
Q012
2SC634SP
SWITCH
D003
ISS119
D007
ISS119
Q704
2SC2785
MUTE
Q703
2SC634SP
MUTE
D701
TLR124
Q501
DTC144ES
D502
ISS119
CF001
CD001
FL501
TP506
TP509
CP501
MUTE DET
DO DET
AMP
LIMIT
μCOMP
HOLD
REC
PB
DOC
HOLD 2
LPF
PG DOUB
REC MUTE
CN003(WHT)
TO FT-17 BOARD W002
PWN
GND
(See page 94)
CN002(WHT)
TO FT-17 BOARD W002
BAND-1
BAND-2
SYNC
UP
DOWN
A-MUTE
(See page 73)
W001
TO SS-66 BOARD CN012
REG
UN SW 45V
GND
UN SW -30V
BOOSTER MIXER RF MODULATOR
RFU001 (RFU-854)
TO SS-66 BOARD CN014
UNSWD 5V
GND
TV/VTR
GND
(See page 74)
AS MODEL
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J


15
16
17
18
19
20
21
22
23
A
B
C
D
E
F
G
H
I
J
IC501
CX-20137A
FM MOD/DEMOD
NOISE REDUCTION
FL501
TP509
TP510
TP511
TP501
TP502
TP507
Q501
DTC144ES
D502
1SS119
CP501
CN006(YEL)
VIDEO OUT
GND
TO VI-33 BOARD W007
(See page 63)
CN502(YEL)
AUDIO IN
AUDIO
AUDIO OUT
TO VI-33 BOARD W013
(See page 63)
CN501(WHT)
GND
PB Y
GND
GND
REC AFM
TO VI-33 BOARD CN008
(See page 63)
W002
AUDIO PB
AFM MUTE
RP RF SWP
TO SS-66 BOARD CN005
(See page 74)
CN007(RED)
REG 12V
LINE/TU
REG 5V
VIDEO IN(Y)
VIDEO IN(X)
TO VI-33 BOARD W009
(See page 67)
CN005(WHT)
AUDIO IN
GND
VIDEO IN
MUTE DET
DO DET
AMP
COMP
HOLD 1
LIMIT
LIM
MOA
REC
PB
MUTE 2
VG
LINE
V ref
TUNER
I ref
DET
LINE MUTE
AGC
MUTE
VCA
VCO
DOC
LPF
HOLD 2
PG DOUB
REC MUTE
LINE MUTE
REG 4.2V
no mark : E-E mode
( ) : REC mode
〈 〉 : PB mode
✳ : can not be measured

Note on Schematic Diagram:

- ● All resistors are in ohms, 1/6W unless otherwise noted. kΩ: 1000Ω, MΩ: 1000kΩ.
- ● All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics. and tantalums.
- ● All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ● ▭ : nonflammable resistor.
- ● ▭ : adjustment for repair.
- ● ─── : B + bus.
- ● - - - : B − bus.
- ● Voltages are dc with respect to ground unless otherwise noted.
- ● Readings are taken with a color-bar signal input.
- ● Readings are taken with a digital multimeter (DC10MΩ).
- ● Voltage variations may be noted due to normal production tolerances.
- ● Marked "✳" is not able to measure the voltage of it's position
- ● Circled numbers refer to waveforms.

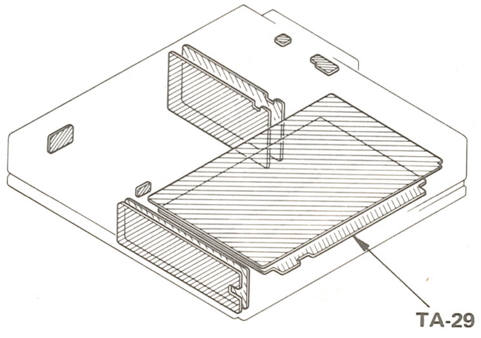
Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- ● **Signal path**
  - ➡ : REC Y & CHROMA SIGNAL
  - ⇨ : PB Y & CHROMA SIGNAL
  - ➡ : REC AUDIO SIGNAL
  - ⇨ : PB AUDIO SIGNAL

Note on Printed Wiring Board:

- ● ○— : indicates a lead wire mounted on the component side.
- ● ●— : indicates a lead wire mounted on the printed side.
- ● ▨ : soldering side.
- ● ▨ : B+ Pattern.
- ● ▨ : B– Pattern.

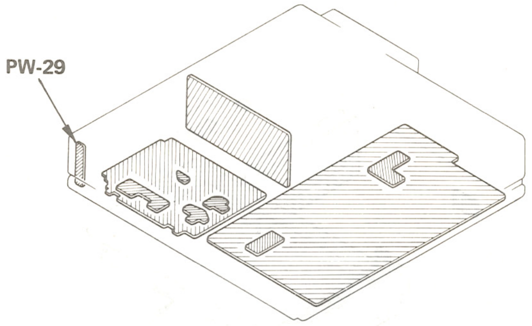


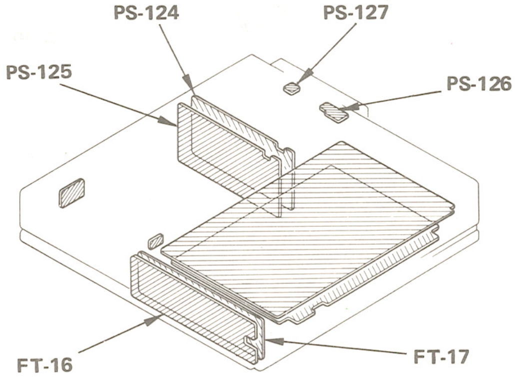
-7. FT-16 (DISPLAY/FUNCTION AND CONTROL SWITCH), FT-17 (TIMER/SYSTEM CONTROL), PW-29 (POWER, EJECT SWITCH), PS-124 (POWER), PS-125 (RECT), PS-126 (REGULATOR), PS-127 (REGULATOR) PRINTED WIRING BOARDS

– Ref. No. FT-16 BOARD: 6,000 series, FT-17 BOARD: 6,000 series, PW-29 BOARD: 6,000 series, PS-124 BOARD: 7,000 series, PS-125 BOARD: 7,000 series, PS-126 BOARD: 7,000 series, PS-127 BOARD: 7,000 series –

Note on Printed Wiring Board:

- ○— : indicates a lead wire mounted on the component side.
- ●— : indicates a lead wire mounted on the printed side.
- ▨ : soldering side.
- ▨ : B+ Pattern.
- ▨ : B– Pattern.




PS-124
PS-127
PS-125
PS-126
FT-16
FT-17

Note on Schematic Diagram:

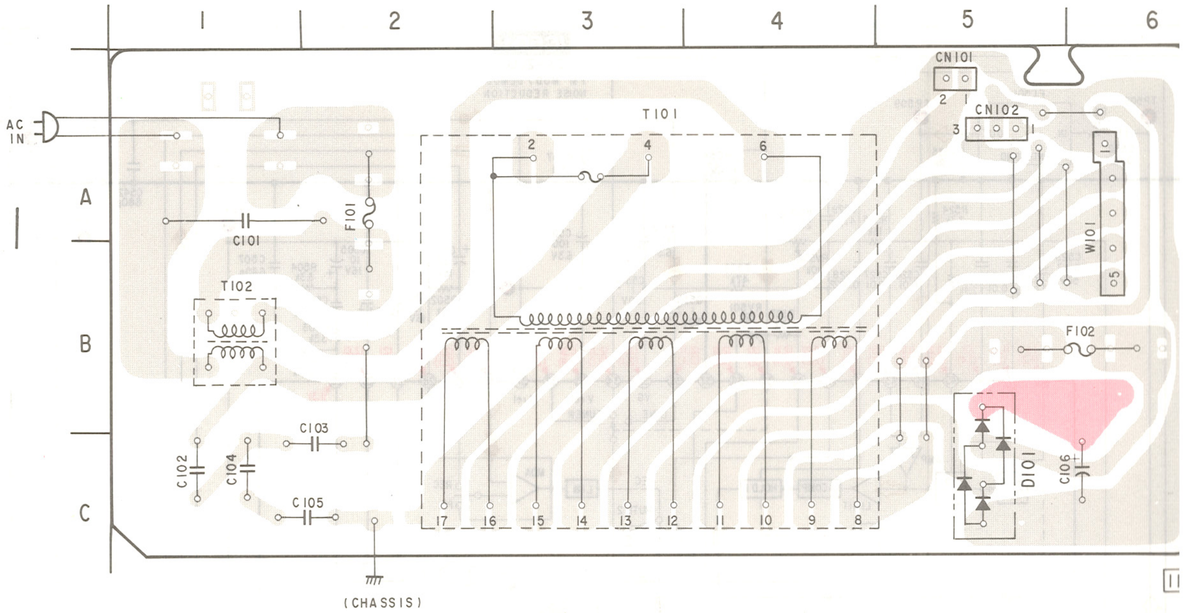
- All resistors are in ohms, 1/6W unless otherwise noted. kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics. and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ☐ : panel designation.
- ☐ : adjustment for repair.
- ━━ : B + bus.
- ╍╍ : B – bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a color-bar signal input.
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltage variations may be noted due to normal production tolerances.
- no mark: E-E mode
- Marked "✳" is not able to measure the voltage of it's position.
- Circled numbers refer to waveforms.

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

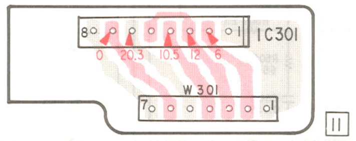
When indicating parts by reference number, please include the board name.

[PS-124 BOARD]

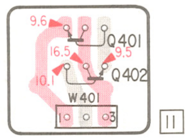
D101	C-5


1
2
3
4
5
6
A
B
C
AC IN
CN101
CN102
T101
C101
F101
T102
C102
C103
C104
C105
F102
D101
C106
W101
(CHASSIS)

[PS-126 BOARD]



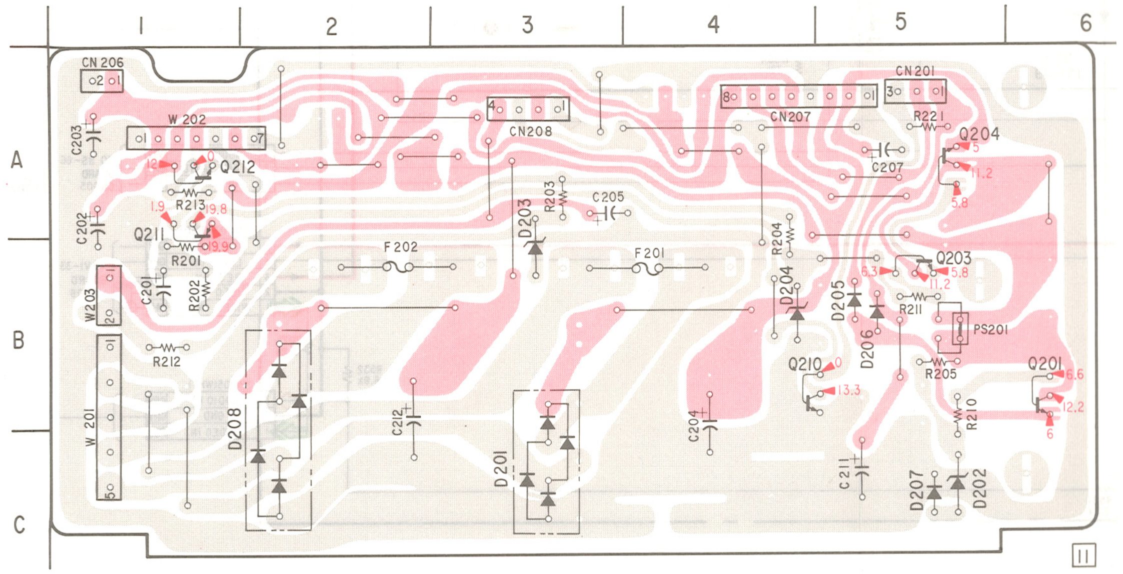
[PS-127 BOARD]

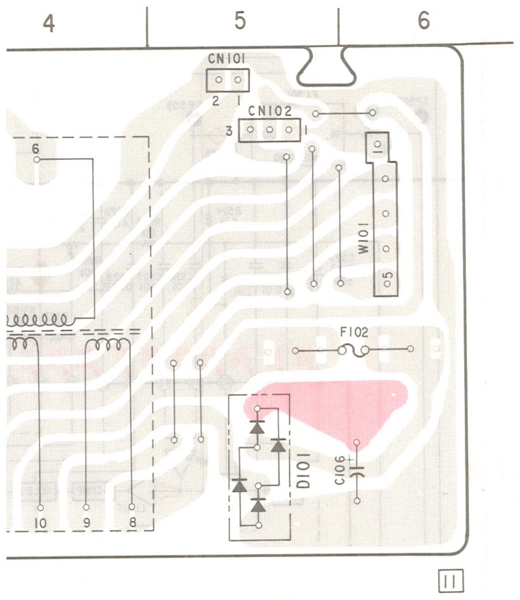

Q401
Q402
W401

no mark : E-E mode

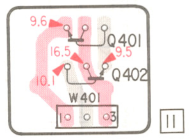
[PS-125 BOARD]

D201	C-3
D202	C-5
D203	B-3
D204	B-4
D205	B-5
D206	B-5
D207	C-5
D208	B-2
Q201	B-6
Q203	B-5
Q204	A-5
Q210	B-5
Q211	A-1
Q212	A-1

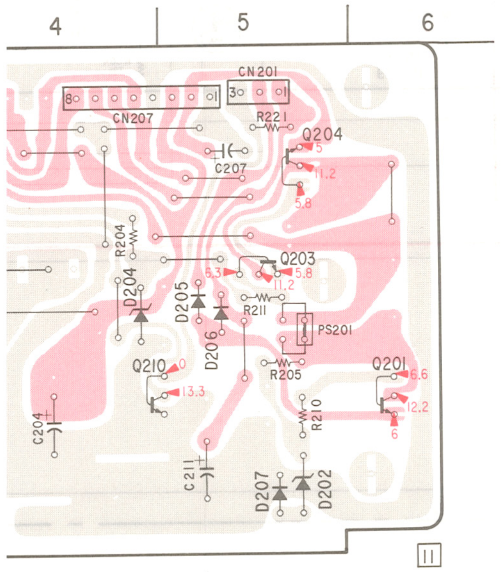

1
2
3
4
5
6
A
B
C
CN206
W202
Q212
R213
Q211
R201
C203
C202
C201
R202
W203
W201
R212
D208
C212
D201
D203
R203
C205
F202
F201
CN208
CN207
CN201
R221
Q204
C207
Q203
R211
PS201
R205
Q201
R210
Q210
D206
D205
D204
R204
C204
C211
D207
D202

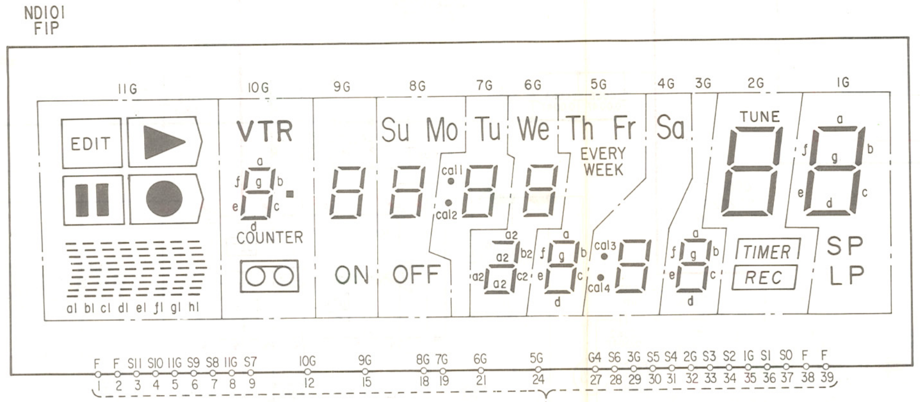

4
5
6
CN101
CN102
W101
F102
D101
C106

【PS – 127 BOARD】


Q401
Q402
W401
9.6
16.5
9.5
10.1

no mark : E – E mode

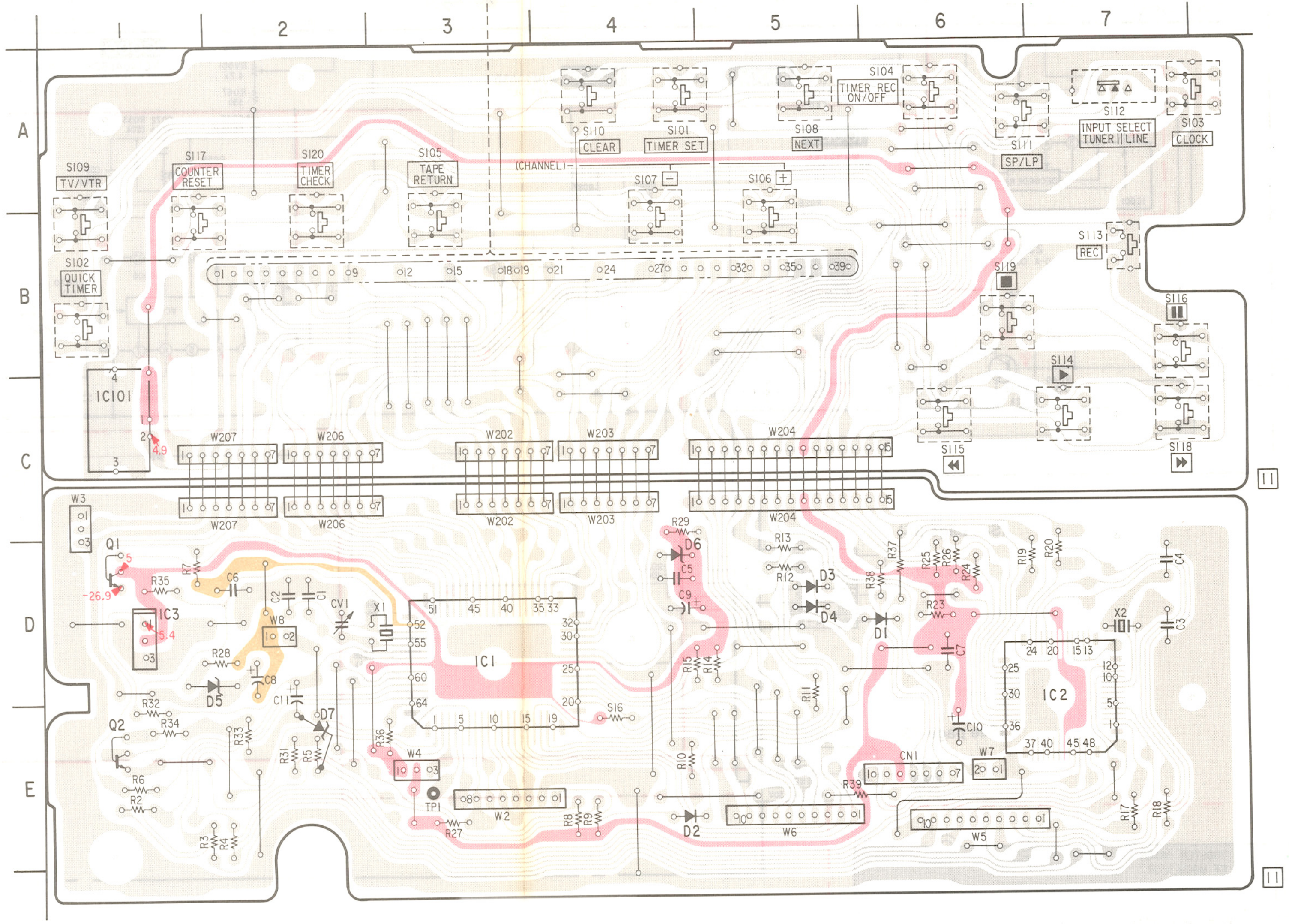

4
5
6
CN201
CN207
R221
Q204
C207
Q203
R204
D204
D205
D206
R211
PS201
Q210
R205
Q201
R210
C204
C211
D207
D202

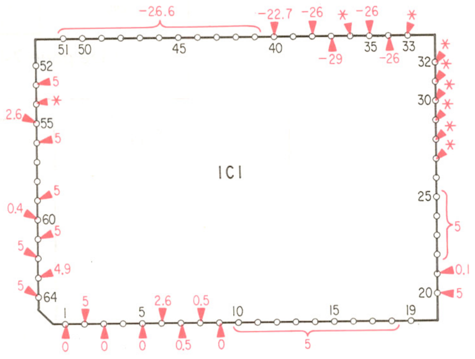

ND101
FIP
EDIT
VTR
COUNTER
ON
OFF
Su Mo Tu We Th Fr Sa
EVERY WEEK
TUNE
TIMER
REC
SP
LP

【FT–16 BOARD】

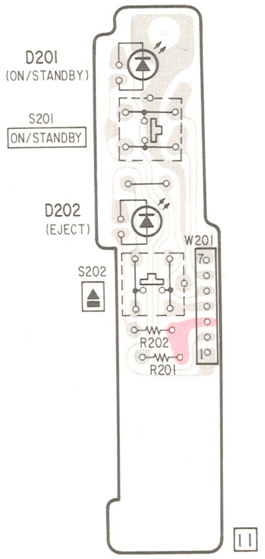
CV001	D-2
D001	D-6
D002	E-4
D003	D-5
D004	D-5
A005	D-2
D006	D-4
D007	E-2
IC001	D-3
IC002	D-7
IC003	D-1
IC101	C-1
Q001	D-1
Q002	E-1

【FT–17 BOARD】

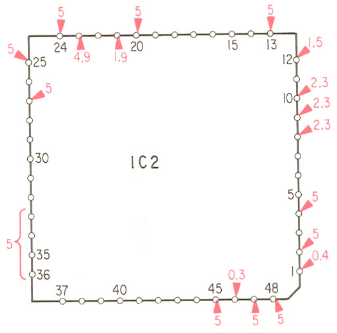

1
2
3
4
5
6
7
A
B
C
D
E
S109 TV/VTR
S117 COUNTER RESET
S120 TIMER CHECK
S105 TAPE RETURN
S110 CLEAR
S101 TIMER SET
S108 NEXT
S104 TIMER REC ON/OFF
S111 SP/LP
S112 INPUT SELECT TUNER LINE
S103 CLOCK
(CHANNEL)
S107
S106
S102 QUICK TIMER
S113 REC
S119
S116
S114
S115
S118
IC101
W207
W206
W202
W203
W204
W3
Q1
Q2
IC1
IC2
IC3
D1
D2
D3
D4
D5
D6
D7
X1
X2
CV1
CN1
TP1
W2
W4
W5
W6
W7
W8
S16


IC1
-26.6
-22.7
-26
-26
-29
-26
2.6
0.4
4.9
2.6
0.5
0.1
0.5

no mark : E – E mode
*: can not be measured

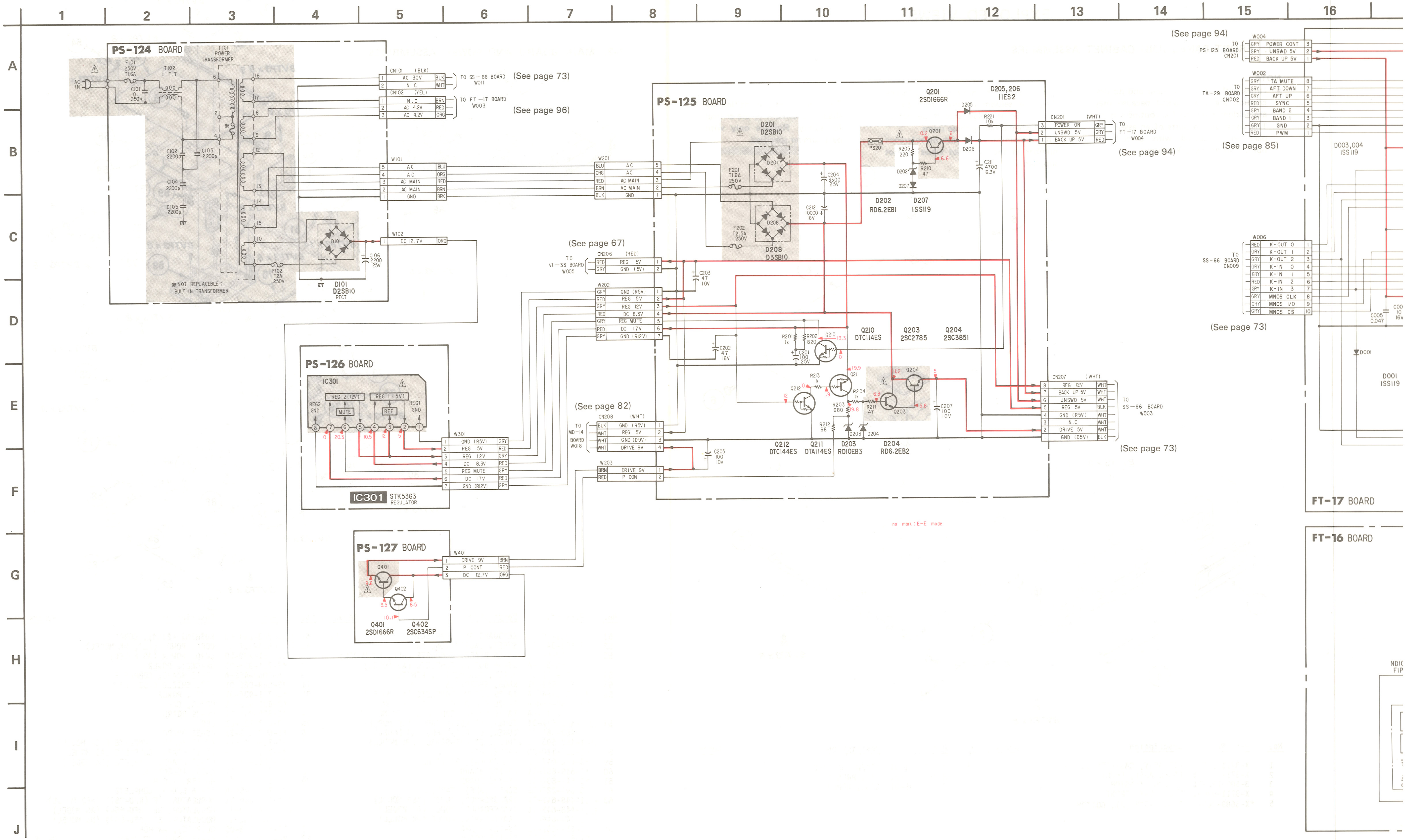

D201 (ON/STANDBY)
S201 ON/STANDBY
D202 (EJECT)
S202
W201
R202
R201

【PW–29 BOARD】


IC2
4.9
1.9
1.5
2.3
2.3
2.3
0.4
0.3

FT-16 (DISPLAY/FUNCTION AND CONTROL SWITCH), FT-17 (TIMER/SYSTEM CONTROL), PW-29 (POWER, EJECT SWITCH), PS-124 (POWER), PS-125 (RECT), PS-126 (REGULATOR), PS-127 (REGULATOR) SCHEMATIC DIAGRAM

– Ref. No. FT-16 BOARD: 6,000 series, FT-17 BOARD: 6,000 series, PW-29 BOARD: 6,000 series, PS-124 BOARD: 7,000 series, PS-125 BOARD: 7,000 series, PS-126 BOARD: 7,000 series, PS-127 BOARD: 7,000 series –



1
2
3
4
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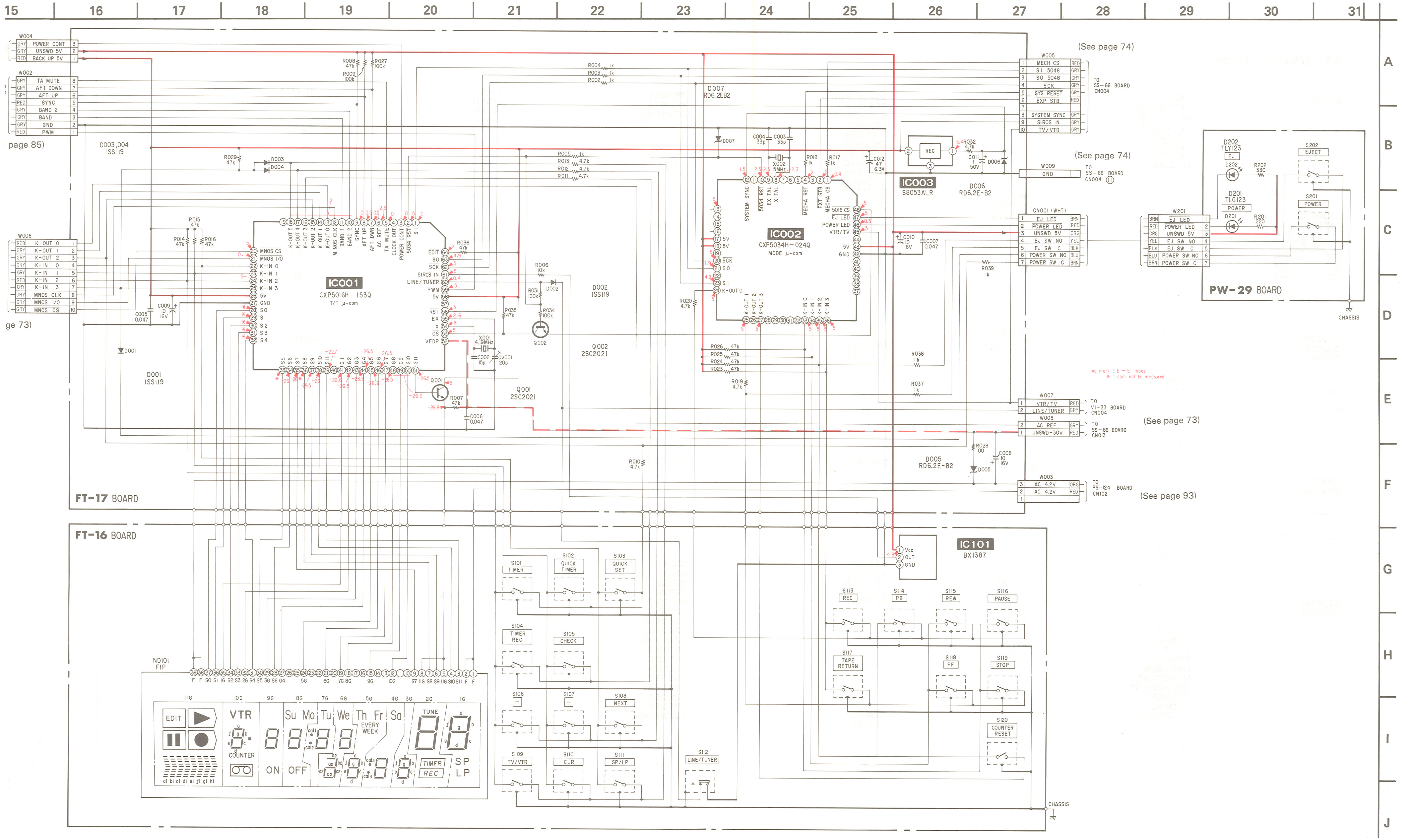
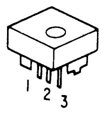
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
PS-124 BOARD
AC IN
F101 250V T1.6A
T102 L.F.T
C101 0.1 250V
T101 POWER TRANSFORMER
C102 2200p
C103 2200p
C104 2200p
C105 2200p
F102 T2A 250V
D101 D2SB10 RECT
C106 2200 25V
※NOT REPLACEBLE : BULT IN TRANSFORMER
CN101 (BLK)
AC 30V
N.C
TO SS-66 BOARD W011
(See page 73)
CN102 (YEL)
N.C
AC 4.2V
AC 4.2V
TO FT-17 BOARD W003
(See page 96)
W101
AC
AC
AC MAIN
AC MAIN
GND
W102
DC 12.7V
PS-125 BOARD
W201
F201 T1.6A 250V
F202 T2.5A 250V
D201 D2SB10
D208 D3SB10
C204 3300 25V
C212 10000 16V
D202 RD6.2EB1
D207 1SS119
Q201 2SD1666R
D205,206 11ES2
PS201
R205 220
R210 47
R221 10k
C211 4700 6.3V
CN201 (WHT)
POWER ON
UNSWD 5V
BACK UP 5V
TO FT-17 BOARD W004
(See page 94)
(See page 67)
TO VI-33 BOARD W005
CN206 (RED)
REG 5V
GND (5V)
C203 47 10V
W202
GND (R5V)
REG 5V
REG 12V
DC 8.3V
REG MUTE
DC 17V
GND (R12V)
C202 47 16V
R201 1k
R202 820
C201 100 25V
Q210 DTC114ES
Q203 2SC2785
Q204 2SC3851
R213 1k
R204 1k
R203 680
R212 68
R211 47
C207 100 10V
Q212 DTC144ES
Q211 DTA114ES
D203 RD10EB3
D204 RD6.2EB2
CN207 (WHT)
REG 12V
BACK UP 5V
UNSWD 5V
REG 5V
GND (R5V)
N.C
DRIVE 5V
GND (D5V)
TO SS-66 BOARD W003
(See page 73)
(See page 82)
TO MD-14 BOARD W018
CN208 (WHT)
GND (R5V)
REG 5V
GND (D9V)
DRIVE 9V
C205 100 10V
W203
DRIVE 9V
P CON
PS-126 BOARD
IC301
REG 2 (12V)
REG 1 (5V)
REG2 GND
MUTE
REF
REG1 GND
W301
GND (R5V)
REG 5V
REG 12V
DC 8.3V
REG MUTE
DC 17V
GND (R12V)
IC301 STK5363 REGULATOR
PS-127 BOARD
Q401
Q402
Q401 2SD1666R
Q402 2SC634SP
W401
DRIVE 9V
P CONT
DC 12.7V
no mark : E-E mode
(See page 94)
TO PS-125 BOARD CN201
W004
POWER CONT
UNSWD 5V
BACK UP 5V
W002
TO TA-29 BOARD CN002
TA MUTE
AFT DOWN
AFT UP
SYNC
BAND 2
BAND 1
GND
PWM
(See page 85)
D003,004 1SS119
W006
TO SS-66 BOARD CN009
K-OUT 0
K-OUT 1
K-OUT 2
K-IN 0
K-IN 1
K-IN 2
K-IN 3
MNOS CLK
MNOS I/O
MNOS CS
(See page 73)
C005 0.047
D001
D001 1SS119
FT-17 BOARD
FT-16 BOARD

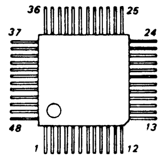

15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
A
B
C
D
E
F
G
H
I
J
W004
POWER CONT
UNSWD 5V
BACK UP 5V
W002
TA MUTE
AFT DOWN
AFT UP
SYNC
BAND 2
BAND 1
GND
PWM
page 85)
ge 73)
W006
K-OUT 0
K-OUT 1
K-OUT 2
K-IN 0
K-IN 1
K-IN 2
K-IN 3
MNOS CLK
MNOS I/O
MNOS CS
D003,004
1SS119
IC001
CXP5016H-153Q
T/T μ-com
IC002
CXP5034H-024Q
MODE μ-com
IC003
S8053ALR
REG
D007
RD6.2EB2
D006
RD6.2E-B2
D005
RD6.2E-B2
D002
1SS119
D001
1SS119
Q001
2SC2021
Q002
2SC2021
X001
4.19MHz
X002
5MHz
W005
MECH CS
SI 5048
SO 5048
SCK
SYS RESET
EXP STB
SYSTEM SYNC
SIRCS IN
TV/VTR
TO SS-66 BOARD CN004
(See page 74)
W009
GND
TO SS-66 BOARD CN004
CN001 (WHT)
EJ LED
POWER LED
UNSWD 5V
EJ SW NO
EJ SW C
POWER SW NO
POWER SW C
W201
PW-29 BOARD
D202 TLY123 EJ
D201 TLG123 POWER
S202 EJECT
S201 POWER
R202 330
R201 220
CHASSIS
W007
VTR/TV
LINE/TUNER
TO VI-33 BOARD CN004
W008
AC REF
UNSWD-30V
TO SS-66 BOARD CN013
(See page 73)
W003
AC 4.2V
AC 4.2V
TO PS-124 BOARD CN102
(See page 93)
no mark : E-E mode
* : can not be measured
FT-17 BOARD
FT-16 BOARD
IC101
BX1387
Vcc
OUT
GND
S101 TIMER
S102 QUICK TIMER
S103 QUICK SET
S104 TIMER REC
S105 CHECK
S106 +
S107 −
S108 NEXT
S109 TV/VTR
S110 CLR
S111 SP/LP
S112 LINE/TUNER
S113 REC
S114 PB
S115 REW
S116 PAUSE
S117 TAPE RETURN
S118 FF
S119 STOP
S120 COUNTER RESET
ND101 FIP
EDIT
VTR
COUNTER
ON
OFF
Su Mo Tu We Th Fr Sa
EVERY WEEK
TUNE
TIMER
REC
SP
LP

4-8. SEMICONDUCTORS

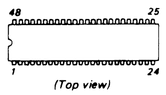
BX1387



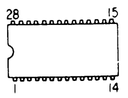
CX20034
CXP5034-024Q


36
25
37
24
48
13
1
12

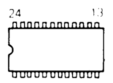
CX20130
CX20131
CX20132
CX20137A


48
25
1
24
(Top view)

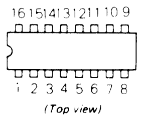
CX20135
CXA1042P


28
15
1
14
(Top view)

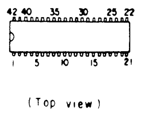
CX20144
CX20147


24
13
1
12
(Top view)

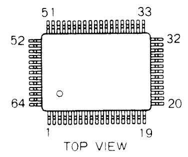
CX22031
CX23042-06
HD14046BP
HD14526BP
MB88306P
MC14046BP
TA7607AP
TC4526BP


16 15 14 13 12 11 10 9
1 2 3 4 5 6 7 8
(Top view)

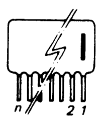
CX23064


42 40 35 30 25 22
1 5 10 15 21
(Top view)

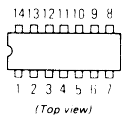
CXP5016H-153Q
CXP5048H-020Q


51
33
52
32
64
20
1
19
TOP VIEW

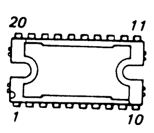
HBD1754B


n
2 1
(Marking side view)

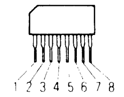
HD14066BP
LC4066B
LM324N
M58655P
MB84066B
MC14066BCP
MSM4066BRS
TC4066BP
µPC324C
µPD4066BC


14 13 12 11 10 9 8
1 2 3 4 5 6 7
(Top view)

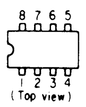
LB1615



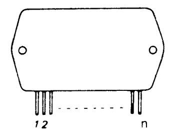
M54572L
µPC1391HA
µPC1391H



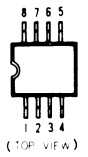
MB3763P
NJM2903D
NJM3414D


8 7 6 5
1 2 3 4
(Top view)

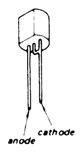
STK5363



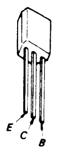
µPC393G


8 7 6 5
1 2 3 4
(TOP VIEW)

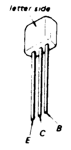
µPC574J


cathode
anode

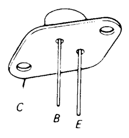
2SA1048-CR
2SA1115
2SC2458
2SC2603
2SC403SP-3
2SC634SP
DTA114ES
DTA144ES
DTC114ES
DTC124ES
DTC143TS
DTC144ES
RN1202
RN1204
RN2202



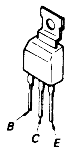
2SA1175
2SC2785


letter side
E
C
B

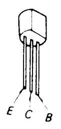
2SA747A



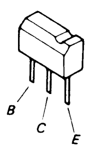
2SA844
2SA933S
2SC1740S
2SC535
2SD655



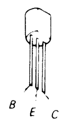
2SB892
2SD788



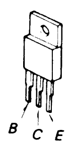
2SC2021
2SC2673
DTA144EF



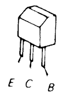
2SC2026-L



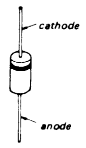
2SC3851
2SD1666-R



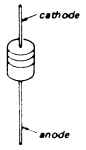
2SD773-4



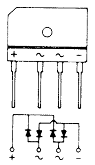
10E-1
10E-2
1S1587
1SS106
EQA02-05
HZ10EB3
HZ6.2EB2
HZ6.2EB3
HZS6.8NB2
RD10EB3
RD30EB3
RD30EB4
RD5.1EB2
RD6.2EB1
RD6.2EB2
RD6.2EB3
RD6.8ESB2


cathode
anode

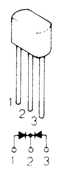
11ES2
1SS119
1SS133
1SS148


cathode
anode

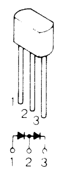
D2SB10
D2SB10



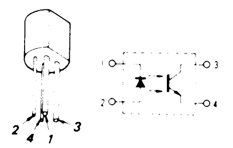
MC921



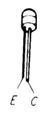
MC931



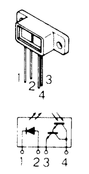
NJL5141E-AB



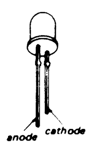
NJL7141E
NJL7141E-S



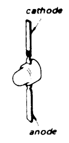
GL-450S



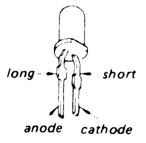
SLR-932A


anode
cathode

SR106C-4


cathode
anode

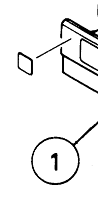
TLG123A
TLR124
TLY123


long
short
anode
cathode

5-1. FRO

NOTE:

- Itmes v
cription
are selc
- The co
part ar
number



No.	Pa
1	X-
2	X-
3	3-
4	X-
5	*X-

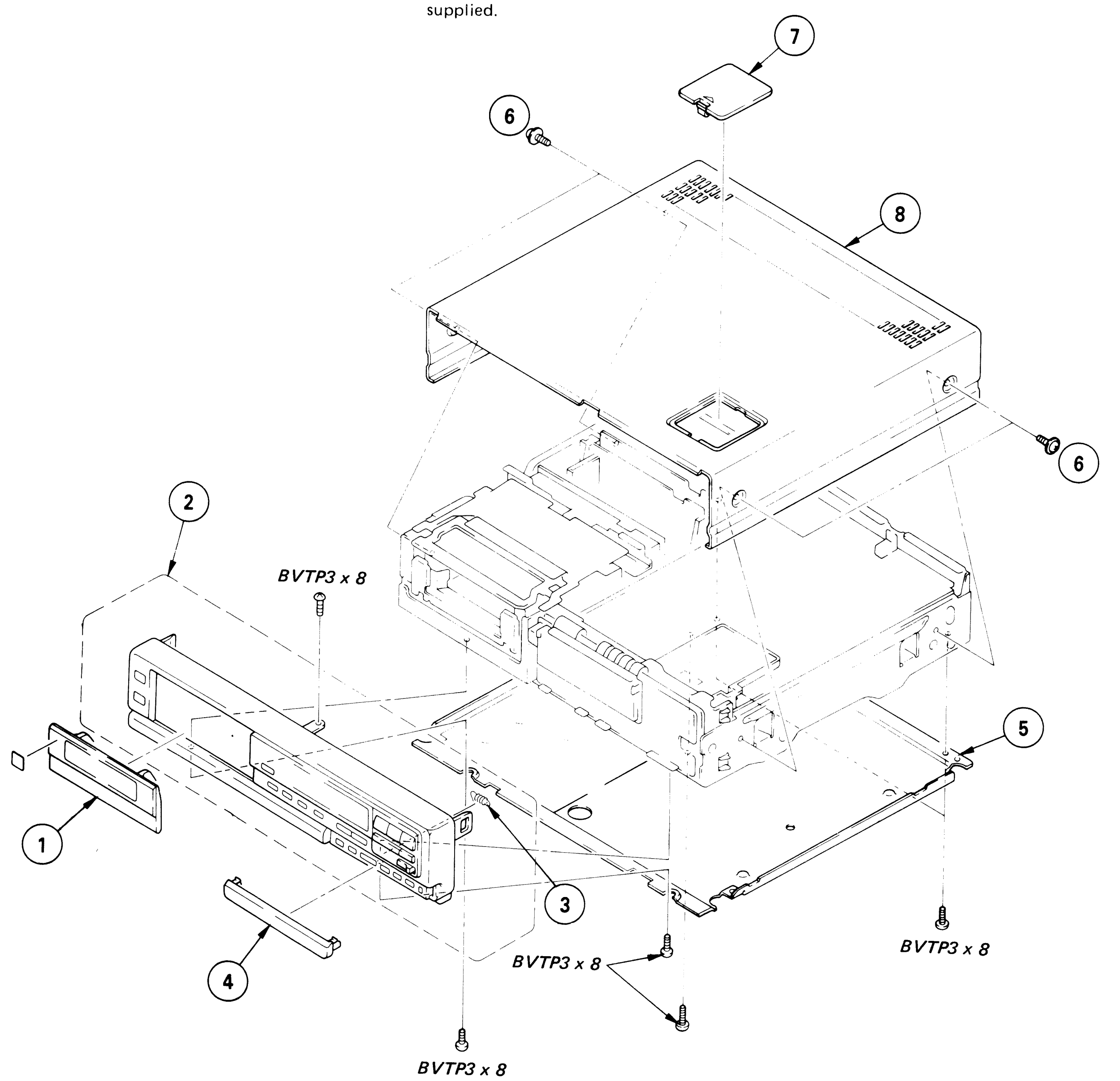
SECTION 5
EXPLODED VIEWS

5-1. FRONT PANEL AND CABINET ASSEMBLIES

NOTE:

- Itmes with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.



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BVTP3 x 8
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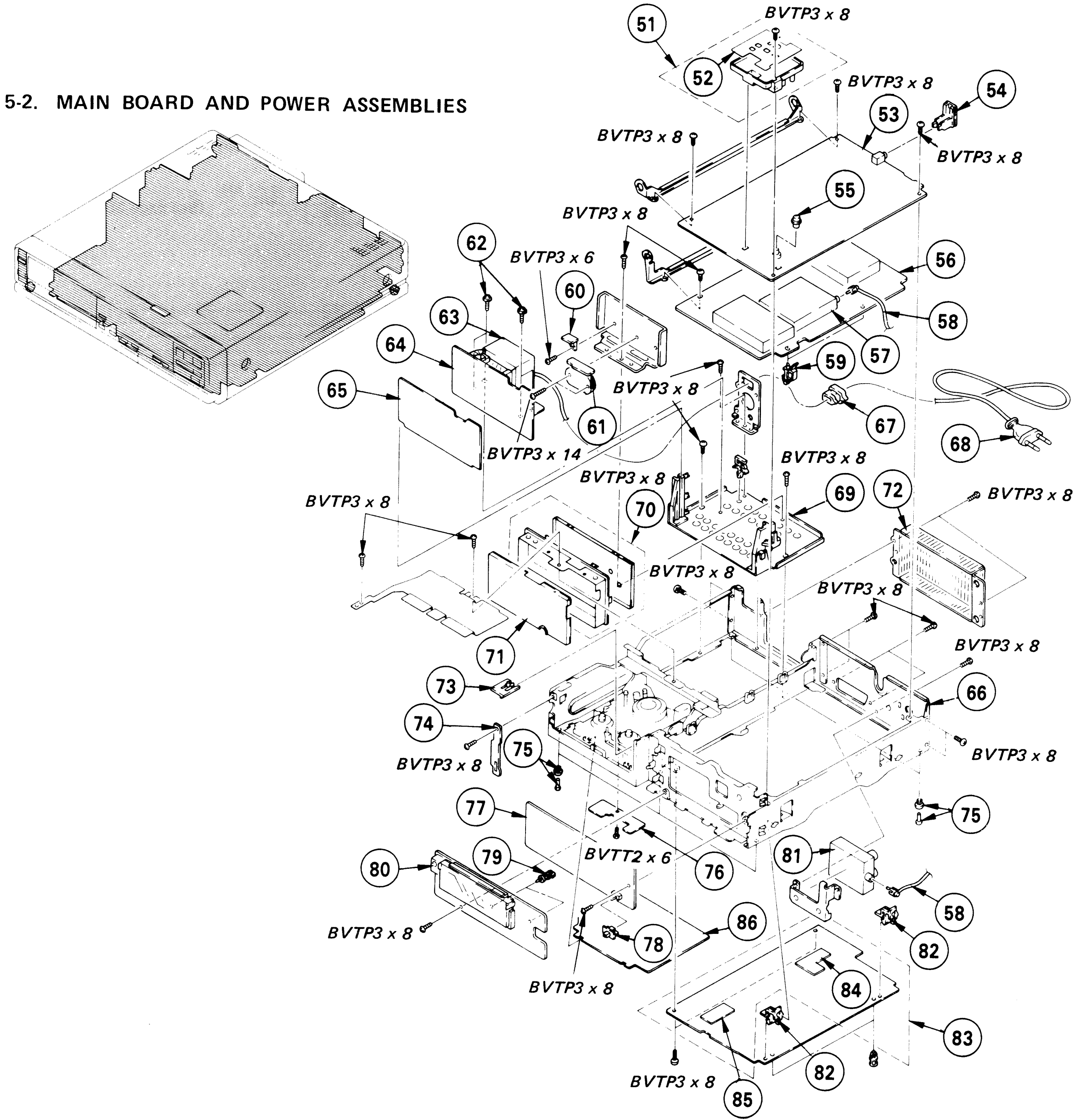
BVTP3 x 8
BVTP3 x 8
BVTP3 x 8

No.	Part No.	Description	Remark
1	X-3711-909-1	LID ASSY, CASSETTE COMPARTMENT	
2	X-3711-911-1	PANEL ASSY, FRONT	
3	3-509-123-11	SPRING, TENSION	
4	X-3711-908-1	DOOR ASSY, FRONT	
5	*X-3689-083-1	BOARD ASSY (2), BOTTOM	
6	4-886-821-01	SCREW, M3 CASE	
7	*2-352-647-51	LID, PRESET	
8	3-711-949-01	CASE, UPPER	

5-2. MAIN BOARD AND POWER ASSEMBLIES



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BVTP3 x 8
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BVTP3 x 8
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BVTP3 x 8
BVTP3 x 8
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BVTP3 x 8
62
BVTP3 x 6
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BVTP3 x 8
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BVTP3 x 14
BVTP3 x 8
BVTP3 x 8
BVTP3 x 8
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BVTP3 x 8
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BVTP3 x 8
BVTP3 x 8
BVTP3 x 8
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BVTP3 x 8
BVTP3 x 8
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BVTT2 x 6
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80
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86
BVTP3 x 8
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82
84
BVTP3 x 8
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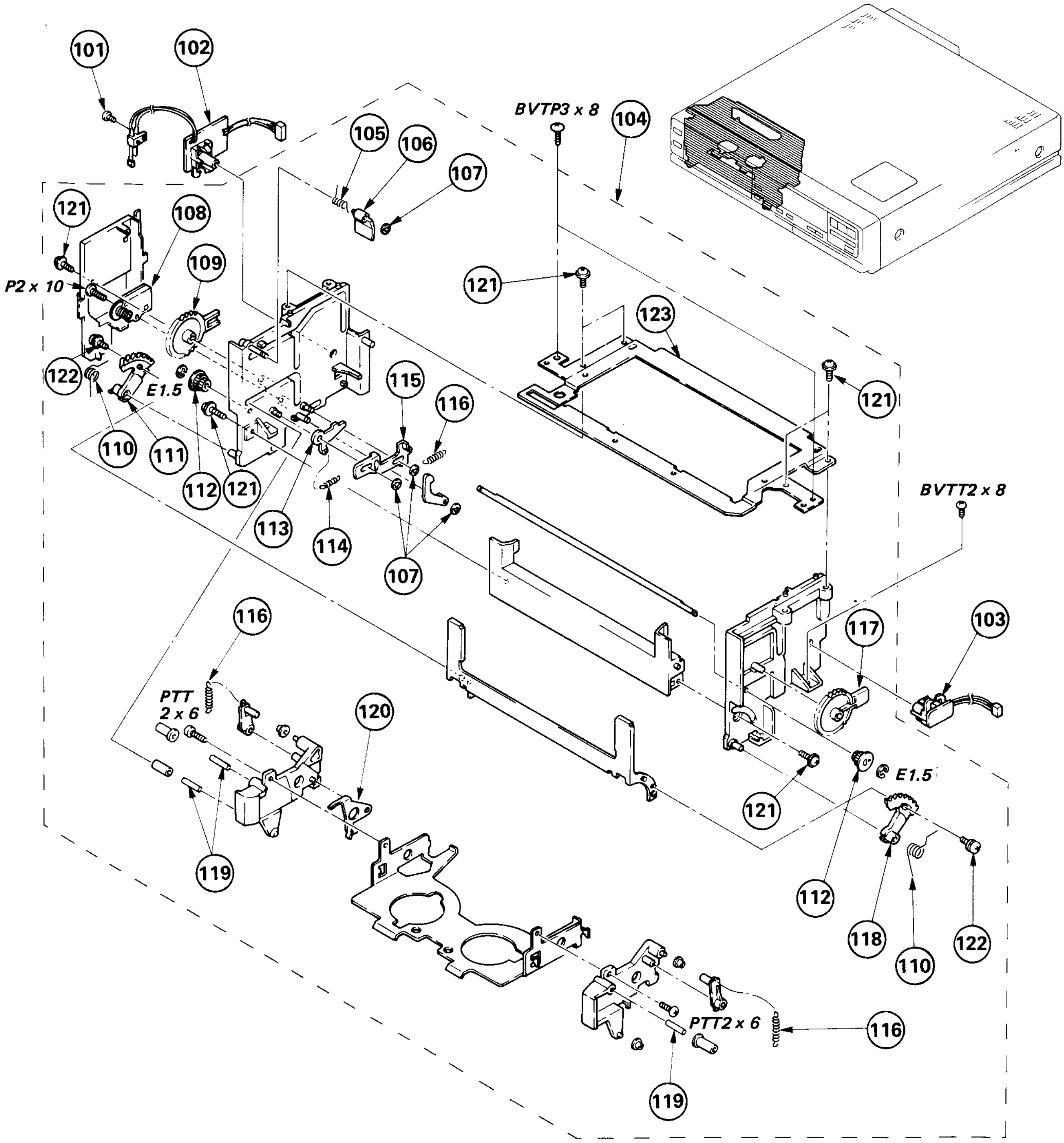
82
BVTP3 x 8
85

No.	Part No.	Description	Remark
51	X-3711-907-1	KEYBOARD ASSY, PRESET	52
52	3-691-947-11	SHEET, INDICATION, PRESET	
53	*A-7060-458-A	SS-66 BOARD, COMPLETE (AEP, HK MODEL)	
	*A-7060-546-A	SS-66 BOARD, COMPLETE (AS MODEL)	
54	3-691-912-01	PLATE, ORNAMENTAL, REMOTE	
55	3-691-971-01	KNOB, SHARPNESS	
56	*A-7060-545-A	TA-29 BOARD, COMPLETE (AS MODEL)	
	*A-7060-550-A	TA-29 BOARD, COMPLETE (HK MODEL)	
	*A-7060-457-A	TA-29 BOARD, COMPLETE (AEP MODEL)	
57	⚠ 1-463-577-31	TUNER, ET (BT-883AD) (AEP MODEL)	
	⚠ 1-463-661-21	TUNER, ET (BT-886D) (AS MODEL)	
	⚠ 1-463-593-21	TUNER, ET (BT-882AD) (HK MODEL)	
58	*1-555-110-00	CABLE, PIN	
59	*3-682-047-01	HOLDER (A), PC BOARD	
60	*1-619-885-11	PS-127 BOARD	
61	*1-619-884-11	PS-126 BOARD	
62	3-694-228-01	SCREW (3X6), TAPPING	
63	⚠ .1-448-647-11	TRANSFORMER, POWER (AEP MODEL)	
	⚠ .1-448-645-11	TRANSFORMER, POWER (AS MODEL)	
	⚠ .1-448-646-11	TRANSFORMER, POWER (HK MODEL)	
64	*1-619-882-11	PS-124 BOARD	
65	*1-619-883-11	PS-125 BOARD	
66	*3-711-944-01	FRAME, REAR (AEP MODEL)	
	*3-711-944-21	FRAME, REAR (AS MODEL)	
	*3-711-944-41	FRAME, REAR (HK MODEL)	
67	⚠ .3-703-244-00	BUSHING (2104), CORD	
68	⚠ .1-534-817-31	CORD, POWER (AEP, HK MODEL)	
	⚠ .1-551-732-00	CORD, POWER (AS MODEL)	
69	*3-711-995-01	BRACKET, POWER	
70	*A-7060-452-A	RP-25 BOARD, COMPLETE	
71	*3-689-066-01	LID, SHIELD CASE, RP	
72	*3-711-936-01	PANEL, POWER	
73	*3-691-916-01	COVER, CAP	
74	*1-620-041-11	PW-29 BOARD	
75	3-697-937-01	LEG	
76	*1-620-043-11	RS-22 BOARD	
77	*A-7060-455-A	FT-17 BOARD, COMPLETE (AEP MODEL)	
	*A-7060-547-A	FT-17 BOARD, COMPLETE (AS MODEL)	
	*A-7060-551-A	FT-17 BOARD, COMPLETE (HK MODEL)	
78	3-711-965-01	KNOB, SELECTION	
79	*3-682-419-11	HOLDER, P.C.B	
80	*A-7060-454-A	FT-16 BOARD, COMPLETE	
81	⚠ 1-464-690-11	MODULATOR, RF (RFU-857) (AEP MODEL)	
	⚠ 1-464-692-11	MODULATOR, RF (RFU-854) (AS MODEL)	
	⚠ 1-464-732-11	MODULATOR, RF (RFU-858) (HK MODEL)	
82	*3-682-613-00	CLIP (C), ANCHOR	
83	*A-7060-746-A	VI-33 BOARD, COMPLETE	84, 85
84	*1-620-394-11	SK-17 BOARD	
85	*1-620-395-11	NC-6 BOARD	
86	*A-7060-453-A	MD-14 BOARD, COMPLETE	

5-3. CASSETTE COMPARTMENT ASSEMBLY


101
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BVTP3 x 8
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P2 x 10
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E1.5
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BVTT2 x 8
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103
PTT 2 x 6
120
E1.5
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110
PTT2 x 6
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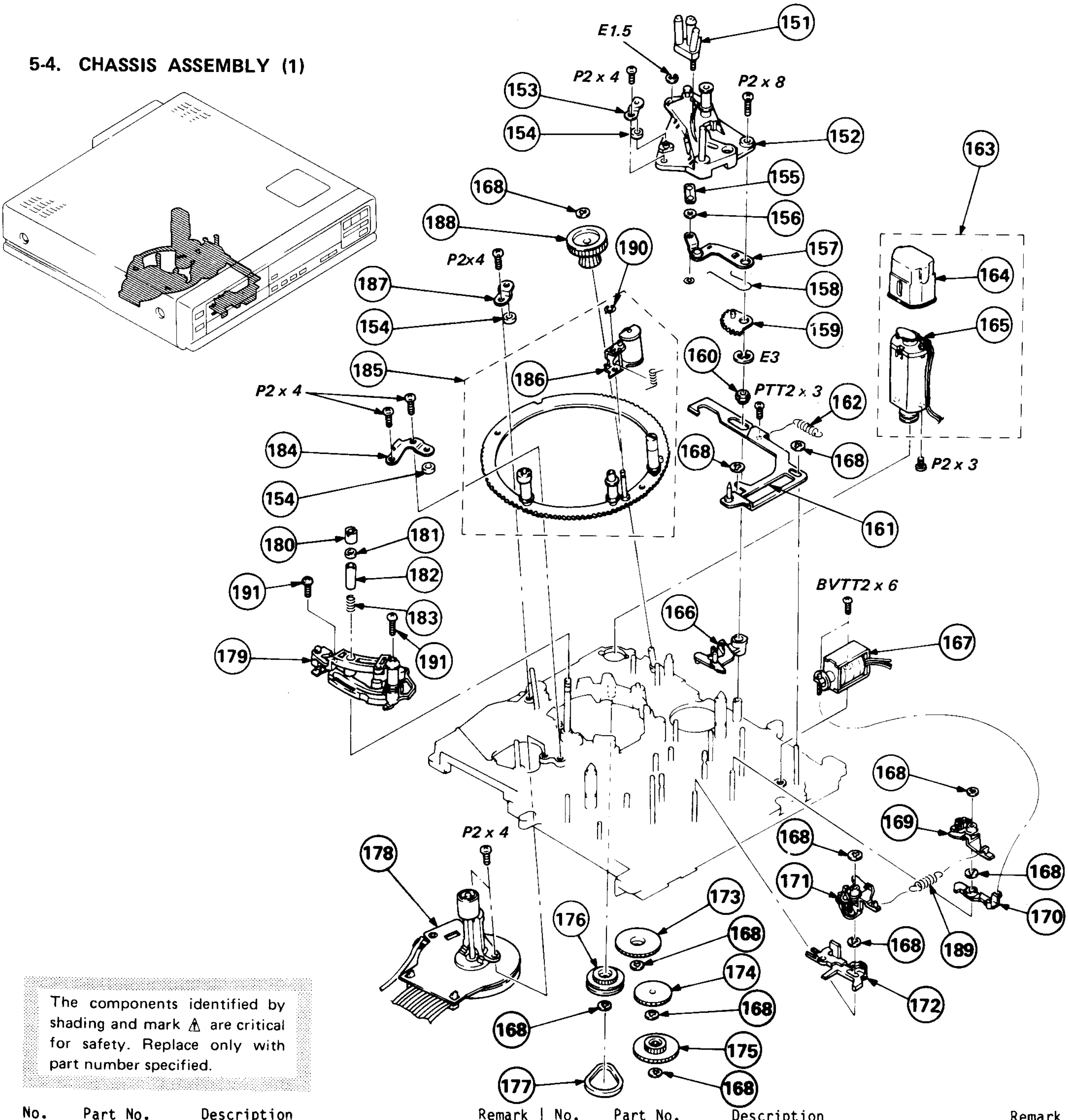
119

No.	Part No.	Description	Remark
101	3-669-479-11	SCREW (1.4X3.5), TAPPING	
102	*1-620-045-11	TE-7 BOARD	
103	*1-615-316-11	TE-1 BOARD	
104	A-7090-177-A	CASSETTE COMPARTMENT BLOCKASSY	105-123
105	3-689-031-01	SPRING, TORSION	
106	3-689-017-01	LEVER, PUSH	
107	3-669-465-00	WASHER (1.5), STOPPER	
108	3-681-528-11	DAMPER	
109	3-689-005-01	GEAR (LEFT), DRIVING	
110	3-689-015-01	SPRING, TORSION	
111	3-689-051-01	GEAR (LEFT), DOOR	
112	3-689-007-01	GEAR, MIDWAY	
113	3-689-049-01	STOPPER, C.L.	
114	3-689-014-01	SPRING, TENSION	
115	3-689-048-01	SLIDER, C.L.	
116	4-602-490-11	SPRING, TENSION	
117	3-689-006-01	GEAR (RIGHT), DRIVING	
118	3-689-052-01	GEAR (RIGHT), DOOR	
119	3-703-357-06	PIN, PARALLEL (DIA. 1.6X14)	
120	3-689-056-03	PLATE, RELEASE, LOCK, LID	
121	3-669-480-11	+ PTPWH 2	
122	3-669-607-00	+PSW (SMALL ROUND) 2.6	
123	*3-697-905-01	PLATE, UPPER, FC	

5-4. CHASSIS ASSEMBLY (1)


E1.5
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P2 x 8
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P2x4
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PTT2 x 3
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P2 x 3
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BVTT2 x 6
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P2 x 4
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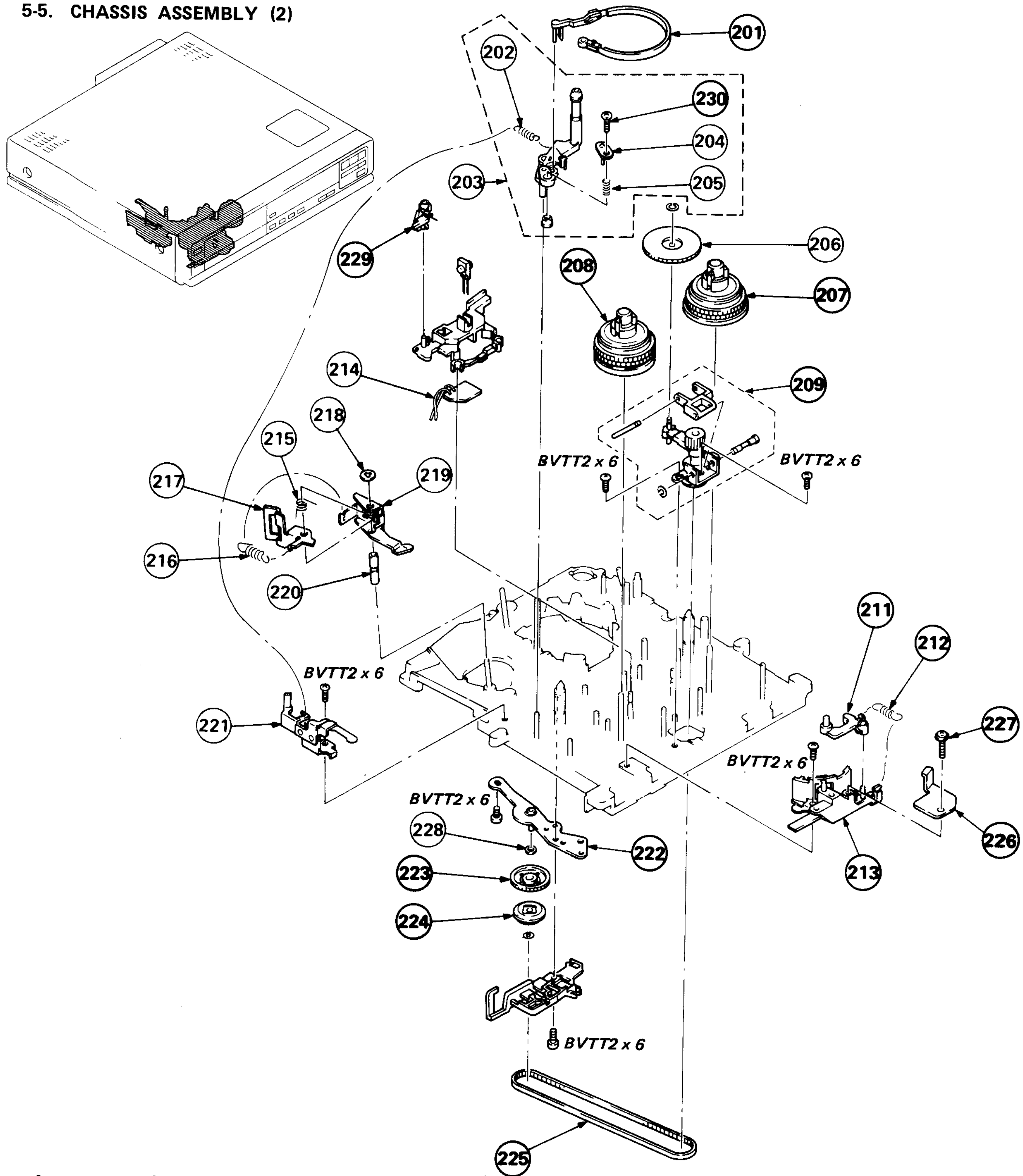
The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

No.	Part No.	Description	Remark
151	X-3686-502-1	BASE ASSY, GUIDE	
152	X-3686-577-1	CHASSIS ASSY, GUIDE, SLANT	
153	*3-686-503-01	RETAINER, ROLLER	
154	3-697-538-01	ROLLER, RING	
155	3-686-663-01	WASHER, STOPPER, 2 GANG	
156	3-701-436-21	WASHER, POLYEHTHYLENE	
157	X-3686-537-1	ARM ASSY	
158	3-686-701-01	SPRING	
159	3-699-509-01	GEAR, SECTOR	
160	3-686-537-01	RETAINER, LOCK SLODER	
161	A-7040-072-A	SLIDER ASSY, LOCK	
162	3-699-650-01	SPRING. TENSION	
163	A-7090-030-A	MOTOR ASS'Y, L M901	164, 165
164	*3-686-757-01	CAP, SHIELD, L MOTOR	
165	1-161-057-00	CAP, CERAMIC 0.033MFX C901	
166	*3-686-636-01	ARM, T.S RELEASE	
167	⚠ 1-454-377-11	SOLENOID, PLUNGER PM901	
168	3-669-465-00	WASHER (1.5), STOPPER	
169	X-3686-574-1	BRAKE ASSY, MAIN, TAKE-UP	
170	*3-686-635-01	ARM, P	
171	X-3686-573-1	BRAKE ASSY, MAIN, SUPPLY	
172	*3-686-629-01	SLIDER, SELECTION, UPPER & LOWER	
173	3-686-508-01	GEAR, NO.2	
174	3-686-545-01	GEAR, NO.3	
175	3-686-544-01	GEAR, NO.4	
176	X-3686-514-1	GEAR ASSY, NO.1	
177	3-686-546-01	BELT, L- MOTOR	
178	8-835-220-01	MOTOR, DC (BHF-2804B) (CAPSTAN) M902	
179	A-7040-054-A	GUIDE (P) ASSY, ENTRANCE	
180	3-686-724-01	NUT, GUIDE	
181	*3-686-894-01	FLANGE, #3 #4 GUIDE	
182	3-686-912-01	GUIDE, #3 #4	
183	3-699-609-01	SPRING, COMPRESSION	
184	*3-686-675-01	STOPPER, RING	
185	A-7040-007-A	RING ASSY, LOADING	186
186	X-3686-576-1	ARM ASSY, PINCH ROLLER	
187	*3-686-911-01	PLATE, TOP, ROLLER	
188	3-697-518-01	GEAR, NO.10	
189	3-686-882-01	SPRING, TENSION	
190	3-315-384-31	WASHER, STOPPER	
191	3-316-938-31	SCREW (B1.4×4), TAPPING	

5-5. CHASSIS ASSEMBLY (2)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BVTT2 x 6
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BVTT2 x 6
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BVTT2 x 6
BVTT2 x 6
228
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224
BVTT2 x 6
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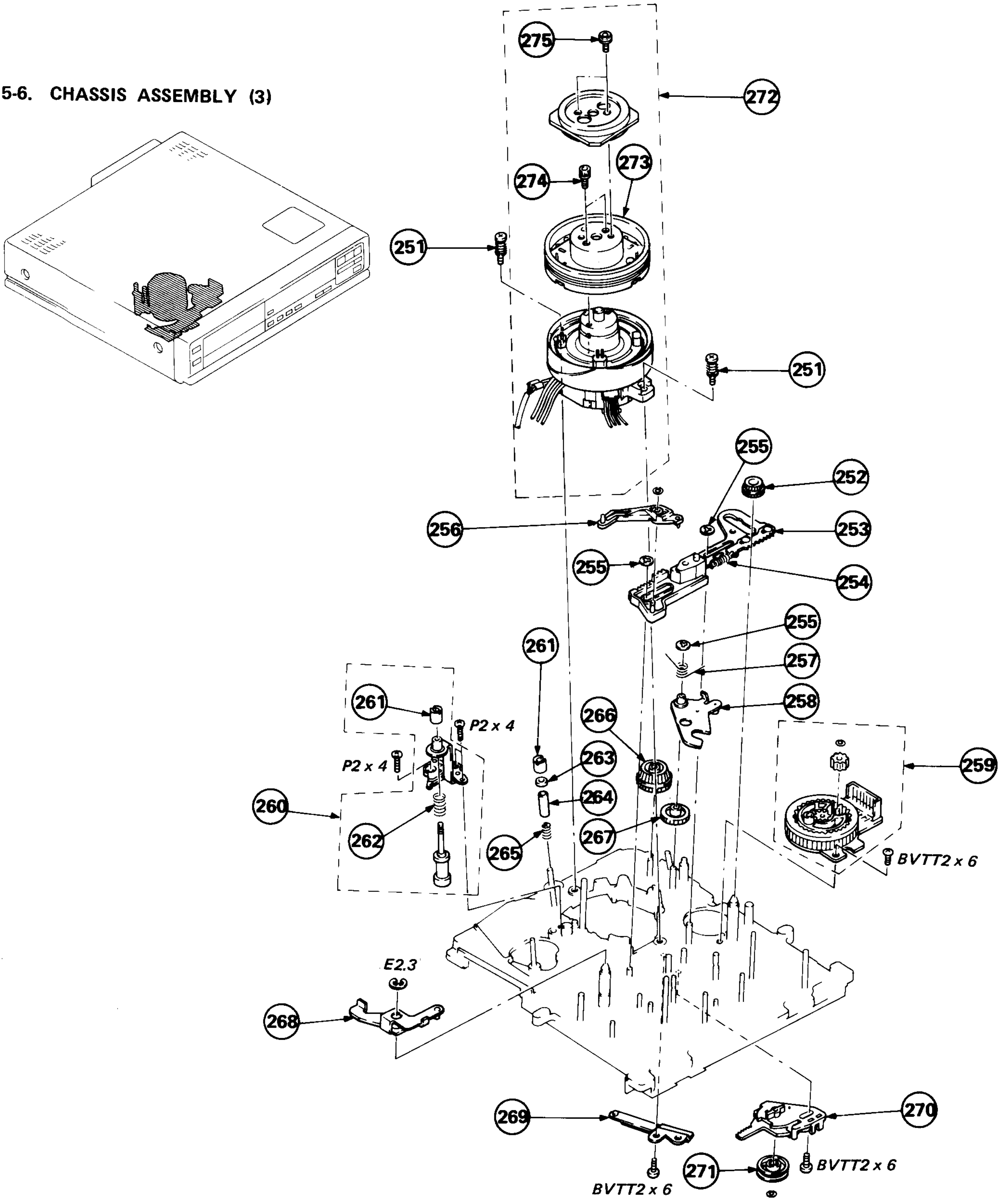
No.	Part No.	Description	Remark
201	X-3686-531-1	BAND ASSY, TENSION REGULATOR	
202	3-699-519-01	SPRING, TENSION	
203	A-7040-059-A	ARM ASSY, TENSION REGULATOR	202,204, 205,230
204	*X-3686-523-1	PLATE ASSY, TENSION REGULATOR	
205	3-699-609-01	SPRING, COMPRESSION	
206	X-3686-763-1	GEAR (B) ASSY, DRIVING	
207	X-3686-572-2	TABLE ASST, REEL, TAKE-UP	
208	X-3686-571-2	TABLE ASST, REEL, SUPPLY	
209	X-3686-750-1	DRIVING COMPLETE ASSY	
211	*3-686-637-01	BRAKE (S), SOFT	
212	3-696-082-01	SPRING, TENSION	
213	*3-686-760-01	GUIDE, BAND	
214	*1-613-367-11	LD-1 BOARD	
215	3-686-568-01	SPRING, TORSION	
216	3-686-885-01	SPRING, TENSION	
217	*3-686-641-01	ARM, PINCH PRESS	
218	3-669-465-00	WASHER (1.5), STOPPER	
219	*3-686-660-01	ARM, PINCH LIMITER	
220	*3-686-567-01	SLEEVE, PINCH PRESS	
221	*X-3686-525-1	HOOK ASSY, SPRING	
222	*X-3686-529-1	BASE ASSY, CHANGE GEAR	
223	X-3686-520-1	GEAR ASSY, CHANGE	
224	*3-686-596-01	FLANGE, GEAR	
225	3-686-646-01	BELT, TIMIMG	
226	*3-686-991-01	STOPPER, REEL TABLE	
227	3-669-480-11	+ PTPWH 2	
228	3-701-436-11	WASHER, 1.6	
229	X-3686-590-1	BRAKE ASSY, REV	
230	3-697-546-01	SCREW (+-M 2x6), SPECIAL	

5-6. CHASSIS ASSEMBLY (3)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P2 x 4
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BVTT2 x 6
E2.3
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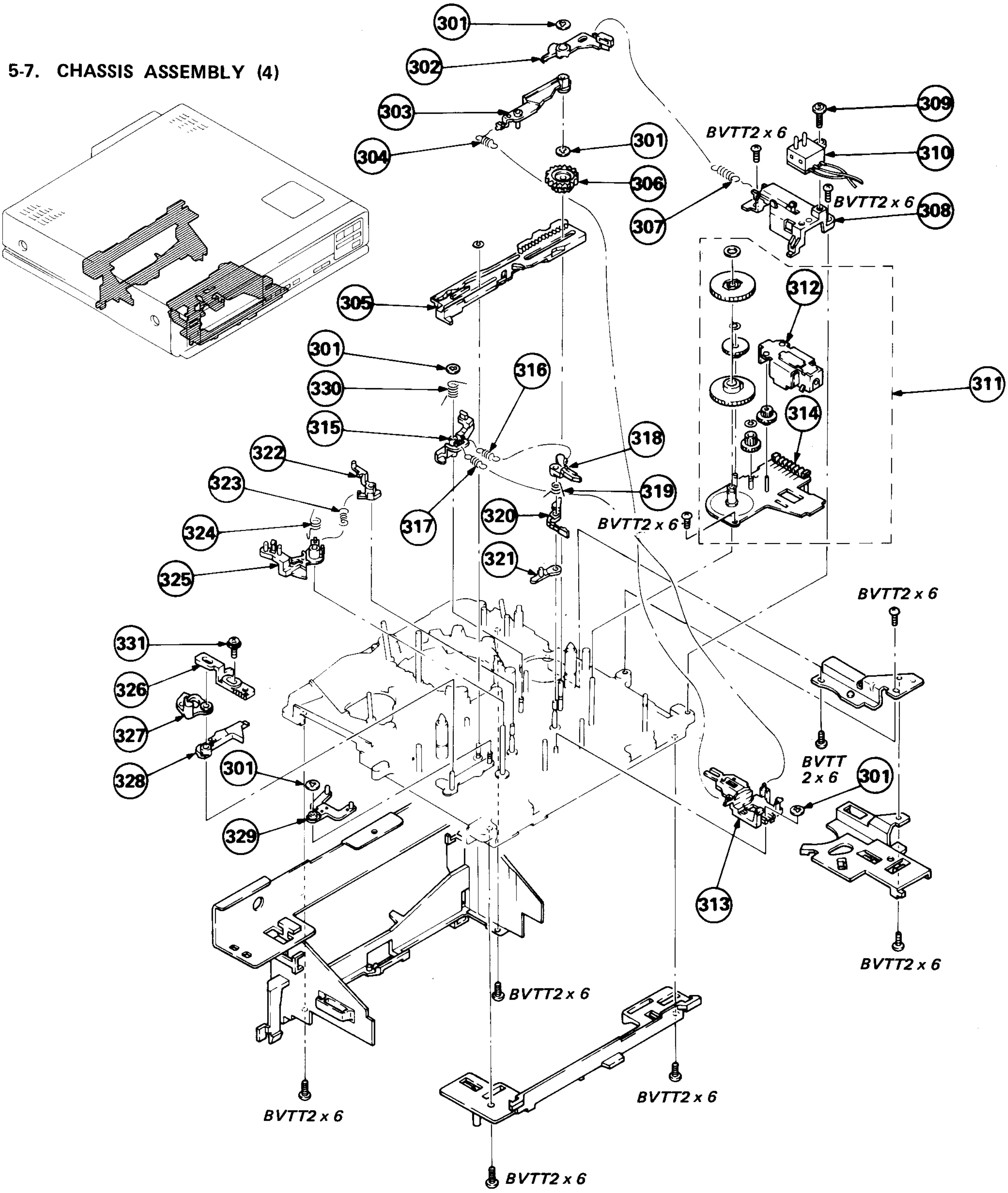
BVTT2 x 6
BVTT2 x 6

No.	Part No.	Description	Remark
251	X-3686-569-1	SCREW ASSY, FITTING	
252	3-686-702-01	GEAR, DRIVING, GUIDE, SLANT	
253	*X-3686-548-2	SLIDER SUB ASSY, L	
254	3-686-886-01	SPRING, TENSION	
255	3-669-465-00	WASHER (1.5), STOPPER	
256	*X-3686-518-1	ARM ASSY	
257	3-686-540-01	SPRING, TORSION	
258	X-3686-579-1	CHANGE ASSY, DRIVE	
259	X-3686-549-1	L-SW ASSY	
260	A-7040-053-A	GUIDE BLOCK COMPLETE ASSY, #5	261, 262
261	3-686-724-01	NUT, GUIDE	
262	3-686-889-01	SPRING, COMPRESSION	
263	*3-686-894-01	FLANGE, #3 #4 GUIDE	
264	3-686-912-01	GUIDE, #3, #4	
265	3-699-609-01	SPRING, COMPRESSION	
266	3-686-539-01	GEAR, NO.9	
267	3-686-535-01	GEAR, NO.8	
268	*X-3686-509-1	LEVER ASSY, PINCH PRESS	
269	1-535-535-11	TERMINAL, SHAFT GROUND	
270	X-3686-521-1	BASE ASSY, IDLER	
271	X-3686-522-1	IDLER ASSY	
272	A-7048-068-A	DRUM ASSY (DGH-18A-R)	273,274,275
273	A-7049-103-A	DRUM ASSY, UPPER (DGR-18-R)	
274	3-686-403-01	BOLT (WASHER)(2X5)	
275	3-686-422-01	BOLT (WASHER)(2X2.7)	

5-7. CHASSIS ASSEMBLY (4)


301
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BVTT2 x 6
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BVTT2 x 6
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BVTT2 x 6
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BVTT2 x 6
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BVTT
2 x 6
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301
329
313
BVTT2 x 6
BVTT2 x 6
BVTT2 x 6
BVTT2 x 6
BVTT2 x 6

No.	Part No.	Description	Remark
301	3-669-465-00	WASHER (1.5), STOPPER	
302	X-3686-777-1	BRAKE ASSY, T.S	
303	*X-3686-528-1	ARM ASSY, B RELEASE	
304	3-686-903-01	SPRING, TENSION	
305	*3-686-657-08	SLIDER, M	
306	3-686-909-01	GEAR, MODE OUTPUT	
307	3-699-649-01	SPRING, TENSION	
308	*3-699-556-01	COVER, CONTROL MOTOR	
309	3-669-480-11	+ PTPWH 2	
310	1-554-942-11	SWITCH, PUSH S901	
311	A-7090-029-A	M-SW ASSY	312, 314
312	8-835-138-01	MOTOR, DC (DNR-5301B)(CONTROL)	M903
313	*3-686-656-01	SLIDER, B RELEASE	
314	*A-7070-055-A	MOUNTED PCB, MS-4	
315	*3-686-634-01	ARM, RL	
316	3-686-906-01	SPRING, TENSION	
317	3-686-904-01	SPRING, TENSION	
318	X-3686-510-1	BRAKE ASSY, REW	
319	3-686-617-01	SPRING	
320	*3-686-638-01	ARM, RVS	
321	*3-686-580-01	ARM, SET UP	
322	3-686-996-01	BRAKE (S), HARD	
323	3-686-905-02	SPRING, TENSION	
324	3-686-603-04	SPRING	
325	*3-686-644-01	ARM, BAND	
326	*3-686-642-01	PLATE, ADJUSTMENT, BAND	
327	*3-686-755-01	DISK, EJECT	
328	*3-686-643-01	ARM, MODE	
329	*X-3686-530-1	ARM (A) ASSY, SELECTION	
330	3-686-579-01	SPRING	
331	3-686-528-01	SCREW (2X6), +	

5-8. HARDWARE LIST

SCREW

7-621-255-20	SCREW +P 2X4
7-621-255-50	SCREW +P 2X8
7-627-553-48	SCREW,PRECISION +P 2X4
7-685-106-19	SCREW +P 2X10 TYPE2 NON-SLIT
7-685-645-79	SCREW +BVTP 3X6 TYPE2 IT-3
7-685-645-89	SCREW +BVTP 3X6 TYPE2
7-685-646-71	SCREW +BVTP 3X8 TYPE2 IT-3
7-685-646-81	SCREW +BVTP 3X8 TYPE2
7-685-649-71	SCREW +BVTP 3X14 TYPE2 IT-3
7-685-649-81	SCREW +BVTP 3X14 TYPE2
7-685-780-04	SCREW +PTT 2X3 (S)
7-685-783-09	SCREW +PTT 2X6 (S)
7-685-853-01	SCREW +BVTT 2X6 (S)

STOP RING

7-624-102-04	STOP RING 1.5, TYPE -E
7-624-105-04	STOP RING 2.3, TYPE -E
7-624-106-04	STOP RING 3.0, TYPE -E

When indicating parts by reference number, please include the board name.

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.

- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

RESISTORS
- All resistors are in ohms
- F : nonflammable

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

CAPACITORS
- MF : μF, PF : μμF

COILS
- MMH : mH, UH : μH

Ref.No	Part No.	Description	Remark
	*A-7060-452-A	RP-25 BOARD, COMPLETE ************************	
	*3-689-065-01	CASE (MAIN), SHIELD, RP	
	*3-689-067-01	LID, REAR, SHIELD CASE, RP	
		CAPACITOR	
C001	1-161-025-00	CERAMIC 0.1MF 10% 25V	
C002	1-123-330-00	ELECT 22MF 20% 16V	
C003	1-161-974-00	CERAMIC 0.1MF 20% 16V	
C004	1-161-013-00	CERAMIC 0.01MF 10% 25V	
C005	1-123-618-00	ELECT 22MF 20% 6.3V	
C006	1-123-618-00	ELECT 22MF 20% 6.3V	
C007	1-161-013-00	CERAMIC 0.01MF 10% 25V	
C009	1-101-884-00	CERAMIC 56PF 5% 50V	
C010	1-102-976-00	CERAMIC 180PF 5% 50V	
C011	1-102-973-00	CERAMIC 100PF 5% 50V	
C012	1-161-013-00	CERAMIC 0.01MF 10% 25V	
C013	1-161-013-00	CERAMIC 0.01MF 10% 25V	
C014	1-161-013-00	CERAMIC 0.01MF 10% 25V	
C015	1-161-974-00	CERAMIC 0.1MF 20% 16V	
C016	1-161-013-00	CERAMIC 0.01MF 10% 25V	
C017	1-161-974-00	CERAMIC 0.1MF 20% 16V	
C018	1-161-013-00	CERAMIC 0.01MF 10% 25V	
C019	1-161-013-00	CERAMIC 0.01MF 10% 25V	
C020	1-161-013-00	CERAMIC 0.01MF 10% 25V	
C021	1-161-013-00	CERAMIC 0.01MF 10% 25V	
C024	1-161-059-00	CERAMIC 0.047MF 10% 25V	
C025	1-123-380-00	ELECT 1MF 20% 50V	
C026	1-102-129-00	CERAMIC 0.01MF 10% 50V	
C027	1-102-965-00	CERAMIC 39PF 5% 50V	
C028	1-102-965-00	CERAMIC 39PF 5% 50V	
C029	1-102-129-00	CERAMIC 0.01MF 10% 50V	
C030	1-102-973-00	CERAMIC 100PF 5% 50V	
C032	1-123-330-00	ELECT 22MF 20% 16V	
C033	1-161-013-00	CERAMIC 0.01MF 10% 25V	
C036	1-123-380-00	ELECT 1MF 20% 50V	
C044	1-161-013-00	CERAMIC 0.01MF 10% 25V	
C045	1-161-013-00	CERAMIC 0.01MF 10% 25V	
C050	1-161-974-00	CERAMIC 0.1MF 20% 16V	
C051	1-161-974-00	CERAMIC 0.1MF 20% 16V	
C053	1-161-025-00	CERAMIC 0.1MF 10% 25V	
C054	1-161-025-00	CERAMIC 0.1MF 10% 25V	
C213	1-161-013-00	CERAMIC 0.01MF 10% 25V	
C214	1-161-013-00	CERAMIC 0.01MF 10% 25V	
		CONNECTOR	
CN001	*1-560-896-00	PIN, CONNECTOR 8P	
CN002	*1-560-895-00	PIN, CONNECTOR 7P	
CN003	*1-564-005-00	PIN, CONNECTOR 6P	
CN004	*1-560-890-00	PIN, CONNECTOR 2P	
CN005	1-564-002-00	PIN, CONNECTOR 3P	
CN006	*1-564-031-00	PIN, CONNECTOR 6P	

Ref.No	Part No.	Description	Remark
		IC	
IC001	8-752-003-40	IC CX20034	
		COIL	
L001	1-408-409-00	MICRO INDUCTOR 10UH	
L002	1-408-423-00	MICRO INDUCTOR 150UH	
L003	1-408-413-00	MICRO INDUCTOR 22UH	
L004	1-408-425-00	MICRO INDUCTOR 220UH	
L005	1-408-409-00	MICRO INDUCTOR 10UH	
L006	1-408-411-00	MICRO INDUCTOR 15UH	
L007	1-408-411-00	MICRO INDUCTOR 15UH	
L008	1-408-413-00	MICRO INDUCTOR 22UH	
		TRANSISTOR	
Q001	8-729-117-54	TRANSISTOR 2SA1175-F	
Q002	8-729-117-54	TRANSISTOR 2SA1175-F	
Q205	8-729-600-27	TRANSISTOR 2SC634SP	
Q206	8-729-600-27	TRANSISTOR 2SC634SP	
		RESISTOR	
R001	1-249-432-11	CARBON 18K 5% 1/6W	
R002	1-249-433-11	CARBON 22K 5% 1/6W	
R003	1-249-433-11	CARBON 22K 5% 1/6W	
R004	1-249-433-11	CARBON 22K 5% 1/6W	
R005	1-249-420-11	CARBON 1.8K 5% 1/6W	
R006	1-249-437-11	CARBON 47K 5% 1/6W	
R009	1-249-433-11	CARBON 22K 5% 1/6W	
R010	1-249-433-11	CARBON 22K 5% 1/6W	
R011	1-249-433-11	CARBON 22K 5% 1/6W	
R012	1-249-432-11	CARBON 18K 5% 1/6W	
R013	1-249-420-11	CARBON 1.8K 5% 1/6W	
R014	1-249-437-11	CARBON 47K 5% 1/6W	
R015	1-249-433-11	CARBON 22K 5% 1/6W	
R016	1-249-433-11	CARBON 22K 5% 1/6W	
R017	1-249-419-11	CARBON 1.5K 5% 1/6W	
R018	1-249-419-11	CARBON 1.5K 5% 1/6W	
R019	1-249-433-11	CARBON 22K 5% 1/6W	
R020	1-249-434-11	CARBON 27K 5% 1/6W	
R021	1-247-813-00	CARBON 180 5% 1/6W	
R022	1-249-405-11	CARBON 100 5% 1/6W	
R023	1-249-405-11	CARBON 100 5% 1/6W	
R029	1-249-429-11	CARBON 10K 5% 1/6W	
R036	1-247-777-00	CARBON 5.6 5% 1/6W	
R039	1-247-821-00	CARBON 390 5% 1/6W	
R052	1-249-433-11	CARBON 22K 5% 1/6W	
R056	1-247-823-00	CARBON 470 5% 1/6W	
R212	1-249-435-11	CARBON 33K 5% 1/6W	
R213	1-247-859-00	CARBON 15K 5% 1/6W	
R214	1-249-414-11	CARBON 560 5% 1/6W	
R215	1-247-821-00	CARBON 390 5% 1/6W	
R216	1-247-823-00	CARBON 470 5% 1/6W	

Ref.No	Part No.	Description				Remark
		VARIABLE RESISTOR				
RV001	1-228-920-00	RES, ADJ, CARBON 2.2K				
RV002	1-228-920-00	RES, ADJ, CARBON 2.2K				
RV003	1-228-994-00	RES, ADJ, CARBON 10K				

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	*A-7060-453-A	MD-14 BOARD, COMPLETE				
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		CAPACITOR				
C001	1-161-025-00	CERAMIC	0.1MF	10%	25V	
C002	1-161-025-00	CERAMIC	0.1MF	10%	25V	
C003	1-161-025-00	CERAMIC	0.1MF	10%	25V	
C004	1-123-380-00	ELECT	1MF	20%	50V	
C005	1-123-382-00	ELECT	3.3MF	20%	50V	
C007	1-123-380-00	ELECT	1MF	20%	50V	
C008	1-123-380-00	ELECT	1MF	20%	50V	
C009	1-123-379-00	ELECT	0.47MF	20%	50V	
C010	1-123-318-00	ELECT	33MF	20%	10V	
C011	1-123-318-00	ELECT	33MF	20%	10V	
C012	1-123-318-00	ELECT	33MF	20%	10V	
C013	1-123-356-00	ELECT	10MF	20%	25V	
C014	1-123-356-00	ELECT	10MF	20%	25V	
C015	1-123-356-00	ELECT	10MF	20%	25V	
C016	1-123-356-00	ELECT	10MF	20%	25V	
C017	1-123-381-00	ELECT	2.2MF	20%	50V	
C018	1-123-356-00	ELECT	10MF	20%	25V	
C019	1-124-271-00	ELECT	1MF	20%	50V	
C101	1-123-306-00	ELECT	47MF	20%	10V	
C102	1-161-013-00	CERAMIC	0.01MF	10%	25V	
C103	1-161-013-00	CERAMIC	0.01MF	10%	25V	
		CONNECTOR				
CN001	*1-564-003-00	PIN, CONNECTOR 4P				
CN002	*1-564-003-00	PIN, CONNECTOR 4P				
CN003	*1-564-003-00	PIN, CONNECTOR 4P				
CN008	*1-564-010-11	PIN, CONNECTOR 11P				
CN009	*1-564-001-11	PIN, CONNECTOR 2P				
CN013	*1-564-002-00	PIN, CONNECTOR 3P				
CN014	1-564-002-00	PIN, CONNECTOR 3P				
CN015	*1-564-001-11	PIN, CONNECTOR 2P				
CN020	*1-564-003-00	PIN, CONNECTOR 4P				
CN025	*1-564-001-11	PIN, CONNECTOR 2P				
CN050	*1-564-005-00	PIN, CONNECTOR 6P				
		DIODE				
D001	8-719-200-02	DIODE 10E-1				
D101	8-719-911-19	DIODE 1SS119				
D102	8-719-911-19	DIODE 1SS119				
D103	8-719-911-19	DIODE 1SS119				
D104	8-719-911-19	DIODE 1SS119				

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
D105	8-719-911-19	DIODE 1SS119				
D106	8-719-911-19	DIODE 1SS119				
D107	8-719-911-19	DIODE 1SS119				
D108	8-719-911-19	DIODE 1SS119				
D109	8-719-911-19	DIODE 1SS119				
		IC				
IC001	8-759-801-97	IC LB1615				
IC002	8-759-202-69	IC CX20144				
IC003	8-759-102-97	IC CX20145				
IC004	8-759-701-43	IC NJM3414D				
		IC LINK				
PS001⚠	1-532-637-21	LINK, IC				
PS002⚠	1-532-675-00	LINK, IC				
PS003⚠	1-532-675-00	LINK, IC				
		TRANSISTOR				
Q002	8-729-804-17	TRANSISTOR 2SD1666				
Q003	8-729-902-11	TRANSISTOR 2SC2021				
Q004	8-729-804-17	TRANSISTOR 2SD1666				
Q101	8-729-902-11	TRANSISTOR 2SC2021				
Q102	8-729-902-11	TRANSISTOR 2SC2021				
Q103	8-729-902-11	TRANSISTOR 2SC2021				
Q104	8-729-902-11	TRANSISTOR 2SC2021				
Q105	8-729-902-11	TRANSISTOR 2SC2021				
Q106	8-729-902-11	TRANSISTOR 2SC2021				
Q108	8-729-117-54	TRANSISTOR 2SA1175				
Q109	8-729-900-30	TRANSISTOR DTA144E				
Q110	8-729-902-11	TRANSISTOR 2SC2021				
		RESISTOR				
R004	1-247-895-00	CARBON	470K	5%	1/6W	
R006	1-249-417-11	CARBON	1K	5%	1/6W	
R008	1-247-833-00	CARBON	1.2K	5%	1/6W	
R010	1-247-883-00	CARBON	150K	5%	1/6W	
R011	1-249-425-11	CARBON	4.7K	5%	1/6W	
R013	1-247-859-00	CARBON	15K	5%	1/6W	
R015	1-249-429-11	CARBON	10K	5%	1/6W	
R016	1-249-417-11	CARBON	1K	5%	1/6W	
R017	1-249-429-11	CARBON	10K	5%	1/6W	
R018	1-247-771-00	CARBON	3.3	5%	1/6W	
R019	1-247-771-00	CARBON	3.3	5%	1/6W	
R020	1-246-413-25	CARBON	3.3	5%	1/4W	
R022	1-249-429-11	CARBON	10K	5%	1/6W	
R024	1-249-433-11	CARBON	22K	5%	1/6W	
R025	1-249-433-11	CARBON	22K	5%	1/6W	
R028	1-247-815-00	CARBON	220	5%	1/6W	
R030	1-249-429-11	CARBON	10K	5%	1/6W	
R034	1-249-429-11	CARBON	10K	5%	1/6W	
R035	1-249-429-11	CARBON	10K	5%	1/6W	
R101	1-249-441-11	CARBON	100K	5%	1/6W	
R102	1-249-441-11	CARBON	100K	5%	1/6W	

Ref.No	Part No.	Description				Remark
R103	1-249-441-11	CARBON	100K	5%	1/6W	
R104	1-247-853-00	CARBON	8.2K	5%	1/6W	
R105	1-247-853-00	CARBON	8.2K	5%	1/6W	
R106	1-247-853-00	CARBON	8.2K	5%	1/6W	
R107	1-247-849-00	CARBON	5.6K	5%	1/6W	
R108	1-247-849-00	CARBON	5.6K	5%	1/6W	
R109	1-247-849-00	CARBON	5.6K	5%	1/6W	
R124	1-247-809-00	CARBON	120	5%	1/6W	
R126	1-246-449-25	CARBON	100	5%	1/4W	
R134	1-249-435-11	CARBON	33K	5%	1/6W	
R135	1-249-433-11	CARBON	22K	5%	1/6W	
R136	1-249-419-11	CARBON	1.5K	5%	1/6W	
R137	1-247-895-00	CARBON	470K	5%	1/6W	
R138	1-247-851-00	CARBON	6.8K	5%	1/6W	
R139	1-249-433-11	CARBON	22K	5%	1/6W	
R140	1-249-429-11	CARBON	10K	5%	1/6W	
R141	1-249-437-11	CARBON	47K	5%	1/6W	
R142	1-247-133-00	CARBON	1.2K	5%	1/4W	
R143	1-247-885-00	CARBON	180K	5%	1/6W	

THERMISTOR

THP001 1-806-886-11 THERMISTOR (POSITIVE)

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*A-7060-746-A VI-33 BOARD, COMPLETE
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CAPACITOR

Ref.No	Part No.	Description				Remark
C001	1-161-025-00	CERAMIC	0.1MF	10%	25V	
C002	1-102-824-00	CERAMIC	470PF	5%	50V	
C003	1-101-006-00	CERAMIC	0.047MF		50V	
C004	1-161-025-00	CERAMIC	0.1MF	10%	25V	
C006	1-102-074-00	CERAMIC	0.001MF	10%	50V	
C007	1-101-006-00	CERAMIC	0.047MF		50V	
C008	1-123-356-00	ELECT	10MF	20%	16V	
C009	1-123-356-00	ELECT	10MF	20%	16V	
C010	1-123-356-00	ELECT	10MF	20%	16V	
C011	1-101-006-00	CERAMIC	0.047MF		50V	
C012	1-101-006-00	CERAMIC	0.047MF		50V	
C013	1-123-380-00	ELECT	1MF	20%	50V	
C014	1-123-309-00	ELECT	330MF	20%	6.3V	
C015	1-123-330-00	ELECT	22MF	20%	16V	
C016	1-123-369-00	ELECT	4.7MF	20%	25V	
C017	1-123-369-00	ELECT	4.7MF	20%	25V	
C019	1-123-356-00	ELECT	10MF	20%	16V	
C020	1-101-006-00	CERAMIC	0.047MF		50V	
C021	1-101-888-00	CERAMIC	68PF	5%	50V	
C022	1-101-888-00	CERAMIC	68PF	5%	50V	
C023	1-102-976-00	CERAMIC	180PF	5%	50V	
C024	1-101-004-00	CERAMIC	0.01MF		50V	
C025	1-101-006-00	CERAMIC	0.047MF		50V	
C026	1-101-006-00	CERAMIC	0.047MF		50V	
C027	1-123-608-00	ELECT	0.22MF	20%	50V	

Ref.No	Part No.	Description				Remark
C028	1-123-356-00	ELECT	10MF	20%	16V	
C029	1-123-356-00	ELECT	10MF	20%	16V	
C030	1-102-820-00	CERAMIC	330PF	5%	50V	
C031	1-102-973-00	CERAMIC	100PF	5%	50V	
C032	1-102-820-00	CERAMIC	330PF	5%	50V	
C033	1-102-942-00	CERAMIC	5PF	0.5PF	50V	
C034	1-102-959-00	CERAMIC	22PF	5%	50V	
C035	1-102-959-00	CERAMIC	22PF	5%	50V	
C038	1-101-006-00	CERAMIC	0.047MF		50V	
C040	1-102-125-00	CERAMIC	0.0047MF	10%	50V	
C041	1-101-361-00	CERAMIC	150PF	5%	50V	
C042	1-123-369-00	ELECT	4.7MF	20%	25V	
C045	1-123-382-00	ELECT	3.3MF	20%	50V	
C046	1-162-215-00	CERAMIC	47PF	5%	50V	
C049	1-101-006-00	CERAMIC	0.047MF		50V	
C050	1-102-980-00	CERAMIC	270PF	5%	50V	
C052	1-101-005-00	CERAMIC	0.022MF		50V	
C053	1-101-006-00	CERAMIC	0.047MF		50V	
C054	1-101-004-00	CERAMIC	0.01MF		50V	
C056	1-102-945-00	CERAMIC	8PF	0.5PF	50V	
C057	1-102-963-00	CERAMIC	33PF	5%	50V	
C058	1-101-006-00	CERAMIC	0.047MF		50V	
C059	1-102-976-00	CERAMIC	180PF	5%	50V	
C060	1-102-976-00	CERAMIC	180PF	5%	50V	
C061	1-101-361-00	CERAMIC	150PF	5%	50V	
C064	1-102-976-00	CERAMIC	180PF	5%	50V	
C065	1-102-971-00	CERAMIC	82PF	5%	50V	
C066	1-102-946-00	CERAMIC	9PF	0.5PF	50V	
C067	1-102-820-00	CERAMIC	330PF	5%	50V	
C068	1-102-960-00	CERAMIC	24PF	5%	50V	
C073	1-101-006-00	CERAMIC	0.047MF		50V	
C076	1-102-947-00	CERAMIC	10PF	5%	50V	
C100	1-101-006-00	CERAMIC	0.047MF		50V	
C101	1-102-074-00	CERAMIC	0.001MF	10%	50V	
C103	1-101-884-00	CERAMIC	56PF	5%	50V	
C104	1-102-959-00	CERAMIC	22PF	5%	50V	
C105	1-123-381-00	ELECT	2.2MF	20%	50V	
C106	1-123-369-00	ELECT	4.7MF	20%	25V	
C107	1-101-884-00	CERAMIC	56PF	5%	50V	
C109	1-101-006-00	CERAMIC	0.047MF		50V	
C110	1-123-381-00	ELECT	2.2MF	20%	50V	
C111	1-123-369-00	ELECT	4.7MF	20%	25V	
C112	1-123-369-00	ELECT	4.7MF	20%	25V	
C114	1-102-942-00	CERAMIC	5PF	0.5PF	50V	
C115	1-101-888-00	CERAMIC	68PF	5%	50V	
C116	1-102-815-00	CERAMIC	110PF	5%	50V	
C117	1-102-978-00	CERAMIC	220PF	5%	50V	
C118	1-123-307-00	ELECT	100MF	20%	6.3V	
C119	1-101-888-00	CERAMIC	68PF	5%	50V	
C120	1-101-006-00	CERAMIC	62PF	5%	50V	
C121	1-101-004-00	CERAMIC	0.01MF		50V	
C122	1-101-884-00	CERAMIC	56PF	5%	50V	
C123	1-101-004-00	CERAMIC	0.01MF		50V	

When indicating parts by reference number, please include the board name.

VI-33

Ref.No	Part No.	Description			Remark
C124	1-102-959-00	CERAMIC	22PF	5%	50V
C125	1-123-356-00	ELECT	10MF	20%	16V
C126	1-102-074-00	CERAMIC	0.001MF	10%	50V
C127	1-102-074-00	CERAMIC	0.001MF	10%	50V
C128	1-101-006-00	CERAMIC	0.047MF		50V
C129	1-123-308-00	ELECT	220MF	20%	6.3V
C130	1-101-006-00	CERAMIC	0.047MF		50V
C131	1-101-006-00	CERAMIC	0.047MF		50V
C132	1-123-330-00	ELECT	22MF	20%	16V
C133	1-101-004-00	CERAMIC	0.01MF		50V
C135	1-102-074-00	CERAMIC	0.001MF	10%	50V
C136	1-102-966-00	CERAMIC	43PF	5%	50V
C137	1-102-074-00	CERAMIC	0.001MF	10%	50V
C139	1-102-074-00	CERAMIC	0.001MF	10%	50V
C140	1-102-074-00	CERAMIC	0.0068MF	10%	50V
C141	1-123-382-00	ELECT	3.3MF	20%	50V
C142	1-102-074-00	CERAMIC	0.001MF	10%	50V
C143	1-102-074-00	CERAMIC	0.001MF	10%	50V
C144	1-101-006-00	CERAMIC	0.047MF		50V
C145	1-123-356-00	ELECT	10MF	20%	16V
C146	1-102-815-00	CERAMIC	110PF	5%	50V
C147	1-101-004-00	CERAMIC	0.01MF		50V
C148	1-102-074-00	CERAMIC	0.001MF	10%	50V
C150	1-102-074-00	CERAMIC	0.001MF	10%	50V
C151	1-101-361-00	CERAMIC	150PF	5%	50V
C152	1-102-824-00	CERAMIC	470PF	5%	50V
C153	1-102-953-00	CERAMIC	18PF	5%	50V
C154	1-123-381-00	ELECT	2.2MF	20%	50V
C156	1-102-953-00	CERAMIC	18PF	5%	50V
C159	1-124-239-00	ELECT	6.8MF	20%	25V
C160	1-123-330-00	ELECT	22MF	20%	16V
C161	1-102-963-00	CERAMIC	33PF	5%	50V
C162	1-101-888-00	CERAMIC	68PF	5%	50V
C163	1-102-978-00	CERAMIC	220PF	5%	50V
C164	1-102-978-00	CERAMIC	220PF	5%	50V
C172	1-101-880-00	CERAMIC	47PF	5%	50V
C200	1-101-006-00	CERAMIC	0.047MF		50V
C201	1-101-006-00	CERAMIC	0.047MF		50V
C202	1-101-004-00	CERAMIC	0.01MF		50V
C203	1-101-004-00	CERAMIC	0.01MF		50V
C204	1-101-004-00	CERAMIC	0.01MF		50V
C206	1-101-004-00	CERAMIC	0.01MF		50V
C207	1-102-074-00	CERAMIC	0.001MF	10%	50V
C208	1-102-942-00	CERAMIC	5PF	0.5PF	50V
C209	1-123-356-00	ELECT	10MF	20%	16V
C210	1-101-004-00	CERAMIC	0.01MF		50V
C211	1-102-820-00	CERAMIC	330PF	5%	50V
C212	1-101-004-00	CERAMIC	0.01MF		50V
C213	1-102-820-00	CERAMIC	330PF	5%	50V
C214	1-101-006-00	CERAMIC	0.047MF		50V
C215	1-102-820-00	CERAMIC	330PF	5%	50V
C216	1-102-947-00	CERAMIC	10PF	5%	50V
C217	1-102-966-00	CERAMIC	43PF	5%	50V

Ref.No	Part No.	Description			Remark
C218	1-102-074-00	CERAMIC	0.001MF	10%	50V
C219	1-102-820-00	CERAMIC	330PF	5%	50V
C220	1-102-820-00	CERAMIC	330PF	5%	50V
C221	1-101-004-00	CERAMIC	0.01MF		50V
C222	1-124-239-00	ELECT	6.8MF	20%	25V
C223	1-101-005-00	CERAMIC	0.022MF		50V
C224	1-123-369-00	ELECT	4.7MF	20%	25V
C225	1-123-356-00	ELECT	10MF	20%	16V
C227	1-101-004-00	CERAMIC	0.01MF		50V
C228	1-101-006-00	CERAMIC	0.047MF		50V
C229	1-123-381-00	ELECT	2.2MF	20%	50V
C230	1-123-608-00	ELECT	0.22MF	20%	50V
C231	1-101-005-00	CERAMIC	0.022MF		50V
C232	1-102-074-00	CERAMIC	0.001MF	10%	50V
C233	1-101-006-00	CERAMIC	0.047MF		50V
C234	1-123-381-00	ELECT	2.2MF	20%	50V
C235	1-102-125-00	CERAMIC	0.0047MF	10%	50V
C237	1-101-880-00	CERAMIC	47PF	5%	50V
C238	1-102-820-00	CERAMIC	330PF	5%	50V
C239	1-102-074-00	CERAMIC	0.001MF	10%	50V
C240	1-123-381-00	ELECT	2.2MF	20%	50V
C241	1-102-074-00	CERAMIC	0.001MF	10%	50V
C244	1-101-880-00	CERAMIC	47PF	5%	50V
C247	1-123-356-00	ELECT	10MF	20%	16V
C248	1-101-006-00	CERAMIC	0.047MF		50V
C249	1-102-820-00	CERAMIC	330PF	5%	50V
C250	1-123-607-00	ELECT	0.1MF	20%	50V
C251	1-123-609-00	ELECT	0.33MF	20%	50V
C252	1-102-963-00	CERAMIC	33PF	5%	50V
C253	1-102-973-00	CERAMIC	100PF	5%	50V
C254	1-101-880-00	CERAMIC	47PF	5%	50V
C255	1-101-880-00	CERAMIC	47PF	5%	50V
C256	1-123-356-00	ELECT	10MF	20%	16V
C257	1-161-025-00	CERAMIC	0.1MF	10%	25V
C258	1-101-888-00	CERAMIC	68PF	5%	50V
C259	1-102-951-00	CERAMIC	15PF	5%	50V
C260	1-102-976-00	CERAMIC	180PF	5%	50V
C261	1-102-945-00	CERAMIC	8PF	0.5PF	50V
C265	1-101-004-00	CERAMIC	0.01MF		50V
C266	1-101-006-00	CERAMIC	0.047MF		50V
C270	1-102-121-00	CERAMIC	0.0022MF	10%	50V
C271	1-101-004-00	CERAMIC	0.01MF		50V
C300	1-123-356-00	ELECT	10MF	20%	16V
C302	1-123-356-00	ELECT	10MF	20%	16V
C400	1-102-973-00	CERAMIC	100PF	5%	50V
C500	1-130-473-00	MYLAR	0.0015MF	5%	50V
C501	1-102-947-00	CERAMIC	10PF	5%	50V
C502	1-101-004-00	CERAMIC	0.01MF		50V
C503	1-101-081-00	CERAMIC	130PF	5%	50V
C504	1-101-004-00	CERAMIC	0.01MF		50V
C505	1-101-004-00	CERAMIC	0.01MF		50V
C599	1-102-959-00	CERAMIC	22PF	5%	50V

When indicating parts by reference number, please include the board name.

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CONNECTOR

Ref.No	Part No.	Description	Remark
CN002	*1-560-890-00	PIN, CONNECTOR 2P	
CN003	*1-560-895-00	PIN, CONNECTOR 7P	
CN004	*1-560-890-00	PIN, CONNECTOR 2P	
CN006	1-561-534-00	SOCKET 21P	
CN008	*1-560-893-00	PIN, CONNECTOR 5P	
CN012	*1-560-893-00	PIN, CONNECTOR 5P	

COMPOSITION CIRCUIT BLOCK

Ref.No	Part No.	Description	Remark
CP001	1-233-070-11	COMPOSITION CIRCUIT BLOCK	
CP003	1-233-034-11	COMPOSITION CIRCUIT BLOCK	
CP004	1-232-917-11	COMPOSITION CIRCUIT BLOCK	
CP005	1-232-918-11	COMPOSITION CIRCUIT BLOCK	
CP006	1-232-928-11	COMPOSITION CIRCUIT BLOCK	
CP007	1-232-935-11	COMPOSITION CIRCUIT BLOCK	
CP008	1-233-037-11	COMPOSITION CIRCUIT BLOCK	
CP011	1-232-922-11	COMPOSITION CIRCUIT BLOCK	
CP013	1-232-938-11	COMPOSITION CIRCUIT BLOCK	
CP014	1-232-915-11	COMPOSITION CIRCUIT BLOCK	
CP015	1-232-912-11	COMPOSITION CIRCUIT BLOCK	
CP016	1-232-931-11	COMPOSITION CIRCUIT BLOCK	
CP017	1-232-913-11	COMPOSITION CIRCUIT BLOCK	
CP018	1-233-036-11	COMPOSITION CIRCUIT BLOCK	
CP019	1-232-916-11	COMPOSITION CIRCUIT BLOCK	
CP020	1-232-932-11	COMPOSITION CIRCUIT BLOCK	
CP021	1-232-936-11	COMPOSITION CIRCUIT BLOCK	
CP022	1-232-934-11	COMPOSITION CIRCUIT BLOCK	
CP100	1-232-927-11	COMPOSITION CIRCUIT BLOCK	

TRIMMER

Ref.No	Part No.	Description	Remark
CV200	1-141-227-00	CAP, CERAMIC TRIMMER	

DIODE

Ref.No	Part No.	Description	Remark
D001	8-719-911-19	DIODE 1SS119	
D002	8-719-151-07	DIODE RD5.1E-B2	
D003	8-719-815-87	DIODE 1S1587	
D004	8-719-815-87	DIODE 1S1587	
D005	8-719-815-87	DIODE 1S1587	
D006	8-719-815-87	DIODE 1S1587	
D008	8-719-911-19	DIODE 1SS119	
D009	8-719-911-19	DIODE 1SS119	
D010	8-719-815-87	DIODE 1S1587	
D102	8-719-000-12	DIODE MC931	
D103	8-719-000-06	DIODE MC921	
D106	8-719-000-12	DIODE MC931	
D107	8-719-000-12	DIODE MC931	
D200	8-719-100-38	DIODE RD6.2EB1	
D203	8-719-000-06	DIODE MC921	
D204	8-719-000-06	DIODE MC921	
D998	8-719-100-38	DIODE RD6.2EB1	
D999	8-719-100-38	DIODE RD6.2EB1	

DELAY LINE

Ref.No	Part No.	Description	Remark
DL100	1-415-282-31	DELAY LINE	
DL101	1-415-386-21	DELAY LINE, 1H (13.3MHZ)	

FILTER

Ref.No	Part No.	Description	Remark
FL100	1-235-440-11	FILTER, BAND PASS (3.7MHZ)	
FL101	1-235-441-11	FILTER, BAND PASS (5.17MHZ)	
FL200	1-409-408-11	C.E TRAP	
FL201	1-409-396-11	REC C TRAP	
FL202	1-235-437-11	BPF, PB C	

IC

Ref.No	Part No.	Description	Remark
IC001	8-752-013-00	IC CX20130	
IC002	8-752-013-10	IC CX20131	
IC003	8-752-013-20	IC CX20132	
IC004	8-759-302-94	CX22031	
IC005	8-759-913-64	IC CX23064	
IC006	8-759-202-68	IC CX20147	
IC007	1-235-497-11	REC PILOT LPF HBD1754B	

COIL

Ref.No	Part No.	Description	Remark
L001	1-408-421-00	MICRO INDUCTOR 100UH	
L002	1-408-413-00	MICRO INDUCTOR 22UH	
L004	1-408-425-00	MICRO INDUCTOR 220UH	
L005	1-408-426-00	MICRO INDUCTOR 270UH	
L006	1-408-425-00	MICRO INDUCTOR 220UH	
L007	1-408-420-00	MICRO INDUCTOR 82UH	
L010	1-408-424-00	MICRO INDUCTOR 180UH	
L013	1-408-423-00	MICRO INDUCTOR 150UH	
L014	1-408-422-00	MICRO INDUCTOR 120UH	
L017	1-408-427-00	MICRO INDUCTOR 330UH	
L018	1-408-422-00	MICRO INDUCTOR 120UH	
L019	1-408-423-00	MICRO INDUCTOR 150UH	
L022	1-408-421-00	MICRO INDUCTOR 100UH	
L100	1-408-397-00	MICRO INDUCTOR 1UH	
L101	1-408-397-00	MICRO INDUCTOR 1UH	
L103	1-408-418-00	MICRO INDUCTOR 56UH	
L104	1-408-420-00	MICRO INDUCTOR 82UH	
L105	1-408-418-00	MICRO INDUCTOR 56UH	
L106	1-408-421-00	MICRO INDUCTOR 100UH	
L107	1-408-419-00	MICRO INDUCTOR 68UH	
L108	1-408-413-00	MICRO INDUCTOR 22UH	
L109	1-408-408-00	MICRO INDUCTOR 8.2UH	
L110	1-408-412-00	MICRO INDUCTOR 18UH	
L111	1-408-413-00	MICRO INDUCTOR 22UH	
L112	1-408-418-00	MICRO INDUCTOR 56UH	
L114	1-408-417-00	MICRO INDUCTOR 47UH	
L115	1-408-417-00	MICRO INDUCTOR 47UH	
L116	1-408-415-00	MICRO INDUCTOR 33UH	
L200	1-408-424-00	MICRO INDUCTOR 180UH	
L201	1-408-413-00	MICRO INDUCTOR 22UH	

When indicating parts by reference number, please include the board name.

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Ref.No	Part No.	Description	Remark
L203	1-408-427-00	MICRO INDUCTOR 330UH	
L206	1-408-425-00	MICRO INDUCTOR 220UH	
L207	1-408-420-00	MICRO INDUCTOR 82UH	
L208	1-408-407-00	MICRO INDUCTOR 6.8UH	
L209	1-408-424-00	MICRO INDUCTOR 180UH	
L500	1-410-072-21	MICRO INDUCTOR 820UH	
L501	1-408-416-00	MICRO INDUCTOR 39UH	
L599	1-408-409-00	MICRO INDUCTOR 10UH	
L701	1-408-984-21	MICRO INDUCTOR 150UH	

VARIABLE COIL

Ref.No	Part No.	Description	Remark
LV001	1-409-397-11	TRAP	
LV100	1-408-512-00	COIL (VARIABLE)	

IC LINK

Ref.No	Part No.	Description	Remark
PS200⚠	1-532-679-00	LINK, IC	

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q003	8-729-117-54	TRANSISTOR 2SA1175	
Q004	8-729-117-54	TRANSISTOR 2SA1175	
Q007	8-729-117-54	TRANSISTOR 2SA1175	
Q008	8-729-384-48	TRANSISTOR 2SA844	
Q009	8-729-600-27	TRANSISTOR 2SC634SP	
Q010	8-729-600-27	TRANSISTOR 2SC634SP	
Q011	8-729-900-36	TRANSISTOR DTC124ES	
Q012	8-729-117-54	TRANSISTOR 2SA1175	
Q013	8-729-117-54	TRANSISTOR 2SA1175	
Q014	8-729-900-36	TRANSISTOR DTC124ES	
Q015	8-729-900-36	TRANSISTOR DTC124ES	
Q016	8-729-600-27	TRANSISTOR 2SC634SP	
Q017	8-729-900-36	TRANSISTOR DTC124ES	
Q021	8-729-900-89	TRANSISTOR DTC144ES	
Q101	8-729-900-36	TRANSISTOR DTC124ES	
Q102	8-729-117-54	TRANSISTOR 2SA1175	
Q103	8-729-600-27	TRANSISTOR 2SC634SP	
Q104	8-729-600-27	TRANSISTOR 2SC634SP	
Q105	8-729-600-27	TRANSISTOR 2SC634SP	
Q107	8-729-900-36	TRANSISTOR DTC124ES	
Q108	8-729-900-36	TRANSISTOR DTC124ES	
Q109	8-729-900-36	TRANSISTOR DTC124ES	
Q110	8-729-600-27	TRANSISTOR 2SC634SP	
Q200	8-729-600-27	TRANSISTOR 2SC634SP	
Q201	8-729-900-36	TRANSISTOR DTC124ES	
Q203	8-729-603-50	TRANSISTOR 2SC403SP	
Q204	8-729-603-50	TRANSISTOR 2SC403SP	
Q205	8-729-900-36	TRANSISTOR DTC124ES	
Q206	8-729-600-27	TRANSISTOR 2SC634SP	
Q207	8-729-900-36	TRANSISTOR DTC124ES	
Q212	8-729-600-27	TRANSISTOR 2SC634SP	
Q213	8-729-900-36	TRANSISTOR DTC124ES	
Q215	8-729-600-27	TRANSISTOR 2SC634SP	
Q216	8-729-600-27	TRANSISTOR 2SC634SP	
Q217	8-729-600-27	TRANSISTOR 2SC634SP	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
Q218	8-729-900-61	TRANSISTOR DTA114ES	
Q258	8-729-900-36	TRANSISTOR DTC124ES	
Q300	8-729-900-36	TRANSISTOR DTC124ES	

RESISTOR

Ref.No	Part No.	Description				Remark
R001	1-247-881-00	CARBON	120K	5%	1/6W	
R002	1-247-895-00	CARBON	470K	5%	1/6W	
R003	1-247-857-00	CARBON	12K	5%	1/6W	
R004	1-247-859-00	CARBON	15K	5%	1/6W	
R005	1-249-437-11	CARBON	47K	5%	1/6W	
R006	1-249-437-11	CARBON	47K	5%	1/6W	
R007	1-249-417-11	CARBON	1K	5%	1/6W	
R008	1-247-891-00	CARBON	330K	5%	1/6W	
R010	1-249-417-11	CARBON	1K	5%	1/6W	
R011	1-249-441-11	CARBON	100K	5%	1/6W	
R012	1-247-875-00	CARBON	68K	5%	1/6W	
R013	1-249-417-11	CARBON	1K	5%	1/6W	
R014	1-249-437-11	CARBON	47K	5%	1/6W	
R015	1-249-437-11	CARBON	47K	5%	1/6W	
R016	1-249-437-11	CARBON	47K	5%	1/6W	
R017	1-247-873-00	CARBON	56K	5%	1/6W	
R018	1-249-425-11	CARBON	4.7K	5%	1/6W	
R019	1-249-425-11	CARBON	4.7K	5%	1/6W	
R020	1-247-833-00	CARBON	1.2K	5%	1/6W	
R022	1-249-433-11	CARBON	22K	5%	1/6W	
R024	1-249-437-11	CARBON	47K	5%	1/6W	
R025	1-249-437-11	CARBON	47K	5%	1/6W	
R026	1-249-437-11	CARBON	47K	5%	1/6W	
R027	1-249-437-11	CARBON	47K	5%	1/6W	
R029	1-247-839-00	CARBON	2.2K	5%	1/6W	
R030	1-249-422-11	CARBON	2.7K	5%	1/6W	
R031	1-247-839-00	CARBON	2.2K	5%	1/6W	
R032	1-247-845-00	CARBON	3.9K	5%	1/6W	
R033	1-247-883-00	CARBON	150K	5%	1/6W	
R037	1-247-853-00	CARBON	8.2K	5%	1/6W	
R040	1-247-823-00	CARBON	470	5%	1/6W	
R042	1-249-417-11	CARBON	1K	5%	1/6W	
R043	1-249-433-11	CARBON	22K	5%	1/6W	
R045	1-247-829-00	CARBON	820	5%	1/6W	
R050	1-247-839-00	CARBON	2.2K	5%	1/6W	
R051	1-247-839-00	CARBON	2.2K	5%	1/6W	
R052	1-249-422-11	CARBON	2.7K	5%	1/6W	
R054	1-249-420-11	CARBON	1.8K	5%	1/6W	
R055	1-247-804-00	CARBON	75	5%	1/6W	
R056	1-247-797-00	CARBON	39	5%	1/6W	
R057	1-247-797-00	CARBON	39	5%	1/6W	
R058	1-249-414-11	CARBON	560	5%	1/6W	
R059	1-247-845-00	CARBON	3.9K	5%	1/6W	
R060	1-247-821-00	CARBON	390	5%	1/6W	
R064	1-247-857-00	CARBON	12K	5%	1/6W	
R065	1-249-414-11	CARBON	560	5%	1/6W	
R066	1-249-415-11	CARBON	680	5%	1/6W	
R067	1-247-805-00	CARBON	82	5%	1/6W	

Ref.No	Part No.	Description				Remark
R069	1-247-829-00	CARBON	820	5%	1/6W	
R070	1-247-883-00	CARBON	150K	5%	1/6W	
R072	1-247-815-00	CARBON	220	5%	1/6W	
R073	1-249-425-11	CARBON	4.7K	5%	1/6W	
R074	1-249-425-11	CARBON	4.7K	5%	1/6W	
R075	1-249-423-11	CARBON	3.3K	5%	1/6W	
R077	1-249-414-11	CARBON	560	5%	1/6W	
R079	1-249-417-11	CARBON	1K	5%	1/6W	
R083	1-247-821-00	CARBON	390	5%	1/6W	
R084	1-247-815-00	CARBON	220	5%	1/6W	
R101	1-247-809-00	CARBON	120	5%	1/6W	
R103	1-249-433-11	CARBON	22K	5%	1/6W	
R104	1-249-433-11	CARBON	22K	5%	1/6W	
R105	1-247-895-00	CARBON	470K	5%	1/6W	
R106	1-247-903-00	CARBON	1M	5%	1/6W	
R108	1-249-429-11	CARBON	10K	5%	1/6W	
R110	1-247-869-00	CARBON	39K	5%	1/6W	
R111	1-247-859-00	CARBON	15K	5%	1/6W	
R113	1-247-833-00	CARBON	1.2K	5%	1/6W	
R114	1-249-425-11	CARBON	4.7K	5%	1/6W	
R122	1-249-417-11	CARBON	1K	5%	1/6W	
R125	1-249-419-11	CARBON	1.5K	5%	1/6W	
R131	1-249-417-11	CARBON	1K	5%	1/6W	
R132	1-247-823-00	CARBON	470	5%	1/6W	
R133	1-249-417-11	CARBON	1K	5%	1/6W	
R134	1-247-821-00	CARBON	390	5%	1/6W	
R135	1-247-821-00	CARBON	390	5%	1/6W	
R136	1-247-809-00	CARBON	120	5%	1/6W	
R137	1-247-817-00	CARBON	270	5%	1/6W	
R138	1-249-437-11	CARBON	47K	5%	1/6W	
R139	1-249-437-11	CARBON	47K	5%	1/6W	
R140	1-249-417-11	CARBON	1K	5%	1/6W	
R141	1-247-849-00	CARBON	5.6K	5%	1/6W	
R142	1-247-859-00	CARBON	15K	5%	1/6W	
R143	1-249-405-11	CARBON	100	5%	1/6W	
R144	1-247-791-00	CARBON	22	5%	1/6W	
R145	1-247-839-00	CARBON	2.2K	5%	1/6W	
R146	1-249-417-11	CARBON	1K	5%	1/6W	
R147	1-249-417-11	CARBON	1K	5%	1/6W	
R151	1-249-419-11	CARBON	1.5K	5%	1/6W	
R155	1-249-437-11	CARBON	47K	5%	1/6W	
R156	1-247-875-00	CARBON	68K	5%	1/6W	
R159	1-249-414-11	CARBON	560	5%	1/6W	
R161	1-247-823-00	CARBON	470	5%	1/6W	
R164	1-249-415-11	CARBON	680	5%	1/6W	
R165	1-249-425-11	CARBON	4.7K	5%	1/6W	
R168	1-249-425-11	CARBON	4.7K	5%	1/6W	
R173	1-247-815-00	CARBON	220	5%	1/6W	
R175	1-249-415-11	CARBON	680	5%	1/6W	
R176	1-249-415-11	CARBON	680	5%	1/6W	
R178	1-249-420-11	CARBON	1.8K	5%	1/6W	
R179	1-247-895-00	CARBON	470K	5%	1/6W	
R180	1-249-434-11	CARBON	27K	5%	1/6W	

Ref.No	Part No.	Description				Remark
R181	1-249-417-11	CARBON	1K	5%	1/6W	
R182	1-249-429-11	CARBON	10K	5%	1/6W	
R183	1-249-432-11	CARBON	18K	5%	1/6W	
R184	1-249-441-11	CARBON	100K	5%	1/6W	
R185	1-249-422-11	CARBON	2.7K	5%	1/6W	
R186	1-247-859-00	CARBON	15K	5%	1/6W	
R187	1-249-435-11	CARBON	33K	5%	1/6W	
R190	1-249-432-11	CARBON	18K	5%	1/6W	
R200	1-249-435-11	CARBON	33K	5%	1/6W	
R201	1-247-823-00	CARBON	470	5%	1/6W	
R203	1-247-845-31	CARBON	3.9K	5%	1/6W	
R209	1-249-417-11	CARBON	1K	5%	1/6W	
R218	1-249-405-11	CARBON	100	5%	1/6W	
R219	1-247-839-00	CARBON	2.2K	5%	1/6W	
R220	1-249-417-11	CARBON	1K	5%	1/6W	
R221	1-249-417-11	CARBON	1K	5%	1/6W	
R222	1-247-859-00	CARBON	15K	5%	1/6W	
R223	1-249-415-11	CARBON	680	5%	1/6W	
R224	1-247-859-00	CARBON	15K	5%	1/6W	
R225	1-249-425-11	CARBON	4.7K	5%	1/6W	
R226	1-249-433-11	CARBON	22K	5%	1/6W	
R227	1-247-839-00	CARBON	2.2K	5%	1/6W	
R232	1-249-432-11	CARBON	18K	5%	1/6W	
R233	1-249-441-11	CARBON	100K	5%	1/6W	
R234	1-247-851-00	CARBON	6.8K	5%	1/6W	
R235	1-247-839-00	CARBON	2.2K	5%	1/6W	
R236	1-249-437-11	CARBON	47K	5%	1/6W	
R237	1-249-437-11	CARBON	47K	5%	1/6W	
R238	1-249-425-11	CARBON	4.7K	5%	1/6W	
R239	1-249-417-11	CARBON	1K	5%	1/6W	
R240	1-249-425-11	CARBON	4.7K	5%	1/6W	
R248	1-247-885-00	CARBON	180K	5%	1/6W	
R251	1-249-429-11	CARBON	10K	5%	1/6W	
R253	1-249-425-11	CARBON	4.7K	5%	1/6W	
R254	1-249-437-11	CARBON	47K	5%	1/6W	
R261	1-249-417-11	CARBON	1K	5%	1/6W	
R262	1-249-422-11	CARBON	2.7K	5%	1/6W	
R264	1-249-417-11	CARBON	1K	5%	1/6W	
R272	1-247-849-00	CARBON	5.6K	5%	1/6W	
R273	1-249-435-11	CARBON	33K	5%	1/6W	
R277	1-249-437-11	CARBON	47K	5%	1/6W	
R280	1-247-817-00	CARBON	270	5%	1/6W	
R282	1-249-433-11	CARBON	22K	5%	1/6W	
R284	1-249-417-11	CARBON	1K	5%	1/6W	
R285	1-247-845-31	CARBON	3.9K	5%	1/6W	
R286	1-247-815-00	CARBON	220	5%	1/6W	
R287	1-249-417-11	CARBON	1K	5%	1/6W	
R288	1-249-417-11	CARBON	1K	5%	1/6W	
R289	1-249-417-11	CARBON	1K	5%	1/6W	
R290	1-247-840-00	CARBON	2.4K	5%	1/6W	
R292	1-249-425-11	CARBON	4.7K	5%	1/6W	
R293	1-249-417-11	CARBON	1K	5%	1/6W	
R306	1-249-429-11	CARBON	10K	5%	1/6W	

When indicating parts by reference number, please include the board name.

VI-33 SK-17 NC-6 TA-29

Ref.No	Part No.	Description				Remark
R307	1-249-429-11	CARBON	10K	5%	1/6W	
R309	1-247-783-00	CARBON	10	5%	1/6W	
R310	1-249-417-11	CARBON	1K	5%	1/6W	
R311	1-249-417-11	CARBON	1K	5%	1/6W	
R312	1-247-873-00	CARBON	56K	5%	1/6W	
R400	1-247-839-00	CARBON	2.2K	5%	1/6W	
R401	1-247-815-00	CARBON	220	5%	1/6W	
R501	1-249-417-11	CARBON	1K	5%	1/6W	
R504	1-249-433-11	CARBON	22K	5%	1/6W	
R507	1-247-811-00	CARBON	150	5%	1/6W	
R508	1-249-429-11	CARBON	10K	5%	1/6W	
R511	1-249-425-11	CARBON	4.7K	5%	1/6W	
R512	1-249-423-11	CARBON	3.3K	5%	1/6W	
R513	1-247-853-00	CARBON	8.2K	5%	1/6W	
R514	1-247-821-00	CARBON	390	5%	1/6W	
R515	1-249-417-11	CARBON	1K	5%	1/6W	
R516	1-249-432-11	CARBON	18K	5%	1/6W	
R517	1-249-432-11	CARBON	18K	5%	1/6W	
R518	1-249-425-11	CARBON	4.7K	5%	1/6W	
R519	1-247-839-00	CARBON	2.2K	5%	1/6W	
R599	1-246-463-25	CARBON	390	5%	1/4W	
R600	1-247-821-00	CARBON	390	5%	1/6W	
R700	1-249-405-11	CARBON	100	5%	1/6W	

VARIABLE RESISTOR

Ref.No	Part No.	Description	
RV001	1-228-995-00	RES, ADJ, CARBON	22K
RV002	1-228-993-00	RES, ADJ, CARBON	4.7K
RV003	1-228-995-00	RES, ADJ, CARBON	22K
RV004	1-228-994-00	RES, ADJ, CARBON	10K
RV005	1-228-995-00	RES, ADJ, CARBON	22K
RV006	1-228-995-00	RES, ADJ, CARBON	22K
RV100	1-228-995-00	RES, ADJ, CARBON	22K
RV101	1-228-996-00	RES, ADJ, CARBON	47K
RV102	1-228-998-00	RES, ADJ, CARBON	220K
RV103	1-228-997-00	RES, ADJ, CARBON	100K
RV201	1-228-990-00	RES, ADJ, CARBON	1K
RV202	1-228-995-00	RES, ADJ, CARBON	22K
RV203	1-228-989-00	RES, ADJ, CARBON	470
RV205	1-228-994-00	RES, ADJ, CARBON	10K
RV206	1-228-996-00	RES, ADJ, CARBON	47K

CRYSTAL

Ref.No	Part No.	Description
X100	1-567-442-11	VIBRATOR, CRYSTAL
X200	1-567-504-11	OSCILLATOR, CRYSTAL
X201	1-567-345-11	VIBRATOR, CRYSTAL

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*1-620-394-11 SK-17 BOARD
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CAPACITOR

Ref.No	Part No.	Description			
C801	1-161-025-00	CERAMIC	0.1MF	10%	25V

TRANSISTOR

Ref.No	Part No.	Description
Q801	8-729-900-89	TRANSISTOR DTC144ES
Q802	8-729-600-27	TRANSISTOR 2SC634SP
Q811	8-729-900-36	TRANSISTOR DTC124ES

RESISTOR

Ref.No	Part No.	Description			
R800	1-249-417-11	CARBON	1K	5%	1/6W
R801	1-249-425-11	CARBON	4.7K	5%	1/6W

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*1-620-395-11 NC-6 BOARD
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CAPACITOR

Ref.No	Part No.	Description			
C700	1-102-980-00	CERAMIC	270PF	5%	50V
C701	1-124-225-00	ELECT	100MF	20%	6.3V
C702	1-102-980-00	CERAMIC	270PF	5%	50V
C703	1-102-961-00	CERAMIC	27PF	5%	50V
C704	1-124-245-00	ELECT	4.7MF	20%	16V
C705	1-124-233-00	ELECT	10MF	20%	16V
C706	1-161-059-00	CERAMIC	0.047MF	10%	25V

TRANSISTOR

Ref.No	Part No.	Description
Q701	8-729-600-27	TRANSISTOR 2SC634SP
Q702	8-729-600-27	TRANSISTOR 2SC634SP
Q703	8-729-600-27	TRANSISTOR 2SC634SP

RESISTOR

Ref.No	Part No.	Description			
R701	1-249-417-11	CARBON	1K	5%	1/6W
R702	1-249-405-11	CARBON	100	5%	1/6W
R703	1-247-839-00	CARBON	2.2K	5%	1/6W
R704	1-247-838-00	CARBON	2K	5%	1/6W
R705	1-247-833-00	CARBON	1.2K	5%	1/6W
R706	1-247-833-00	CARBON	1.2K	5%	1/6W
R707	1-247-831-00	CARBON	1K	5%	1/6W
	※1-247-821-00	CARBON	390	5%	1/6W
R708	1-249-433-11	CARBON	22K	5%	1/6W
R709	1-247-857-00	CARBON	12K	5%	1/6W
R710	1-249-423-11	CARBON	3.3K	5%	1/6W

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*A-7060-457-A TA-29 BOARD, COMPLETE (AEP MODEL)
*A-7060-545-A TA-29 BOARD, COMPLETE (AS MODEL)
*A-7060-550-A TA-29 BOARD, COMPLETE (HK MODEL)
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*1-560-891-00 PIN, CONNECTOR 3P

CAPACITOR

Ref.No	Part No.	Description			
C001	1-102-531-00	CERAMIC	150PF	5%	50V
C002	1-102-530-00	CERAMIC	120PF	5%	50V
C003	1-102-518-00	CERAMIC	33PF	5%	50V
C004	1-102-851-00	CERAMIC	15PF	5%	50V
C005	1-102-125-00	CERAMIC	0.0047MF	10%	50V

When indicating parts by reference number, please include the board name.

※ R707 is an adjusting resistor. When it is replaced by occasion of repair, use a part having the same constant as the part which has been installed.

Ref.No	Part No.	Description				Remark
C006	1-102-125-00	CERAMIC	0.0047MF	10%	50V	
C007	1-102-125-00	CERAMIC	0.0047MF	10%	50V	
C008	1-102-125-00	CERAMIC	0.0047MF	10%	50V	
C009	1-102-125-00	CERAMIC	0.0047MF	10%	50V	
C010	1-102-125-00	CERAMIC	0.0047MF	10%	50V	
C011	1-123-379-00	ELECT	0.47MF	20%	50V	
C012	1-102-125-00	CERAMIC	0.0047MF	10%	50V	
C013	1-102-125-00	CERAMIC	0.0047MF	10%	50V	
C014	1-123-318-00	ELECT	33MF	20%	16V	
C015	1-102-125-00	CERAMIC	0.0047MF	10%	50V	
C016	1-102-125-00	CERAMIC	0.0047MF	10%	50V	
C017	1-102-125-00	CERAMIC	0.0047MF	10%	50V	
C018	1-102-529-00	CERAMIC	100PF	5%	50V	
C019	1-102-504-00	CERAMIC	4PF	0.25PF	50V	
C020	1-102-518-00	CERAMIC	33PF	5%	50V	
C021	1-102-504-00	CERAMIC	4PF	0.25PF	50V	
C022	1-102-529-00	CERAMIC	100PF	5%	50V	
C023	1-102-518-00	CERAMIC	33PF	5%	50V	
C025	1-123-307-00	ELECT	100MF	20%	10V	
C026	1-102-760-00	CERAMIC	68PF	5%	50V	
C027	1-123-369-00	ELECT	4.7MF	20%	25V	
C028	1-102-959-00	CERAMIC	22PF	5%	50V	
C029	1-102-959-00	CERAMIC	22PF	5%	50V	
C030	1-101-004-00	CERAMIC	0.01MF		50V	
C031	1-101-004-00	CERAMIC	0.01MF		50V	
C032	1-102-125-00	CERAMIC	0.0047MF	10%	50V	
C033	1-102-959-00	CERAMIC	22PF	5%	50V	
C034	1-101-004-00	CERAMIC	0.01MF		50V	
C035	1-123-318-00	ELECT	33MF	20%	16V	
C036	1-108-807-00	MYLAR	0.018MF	5%	50V	
C037	1-123-356-00	ELECT	10MF	20%	16V	
C038	1-108-599-00	MYLAR	0.068MF	5%	50V	
C039	1-108-599-00	MYLAR	0.068MF	5%	50V	
C040	1-102-963-00	CERAMIC	33PF	5%	50V	
C041	1-123-318-00	ELECT	33MF	20%	16V	
C042	1-102-125-00	CERAMIC	0.0047MF	10%	50V	
C043	1-123-369-00	ELECT	4.7MF	20%	25V	
C044	1-123-380-00	ELECT	1MF	20%	50V	(AEP, AS MODEL)
C045	1-123-380-00	ELECT	1MF	20%	50V	(AEP, AS MODEL)
C046	1-123-380-00	ELECT	1MF	20%	50V	(AEP, AS MODEL)
C047	1-123-318-00	ELECT	33MF	20%	16V	
C048	1-123-330-00	ELECT	22MF	20%	16V	
C050	1-102-973-00	CERAMIC	100PF	5%	50V	
C051	1-108-603-00	MYLAR	0.1MF	5%	50V	
C052	1-123-356-00	ELECT	10MF	20%	50V	
C053	1-123-332-00	ELECT	47MF	20%	16V	
C057	1-102-074-00	CERAMIC	0.001MF	10%	50V	
C058	1-123-356-00	ELECT	10MF	20%	16V	
C059	1-123-356-00	ELECT	10MF	20%	16V	
C060	1-101-004-00	CERAMIC	0.01MF		50V	
C061	1-123-318-00	ELECT	33MF	20%	16V	
C062	1-102-125-00	CERAMIC	0.0047MF	10%	50V	
C063	1-123-356-00	ELECT	10MF	20%	16V	
C064	1-102-125-00	CERAMIC	0.0047MF	10%	50V	
C066	1-108-603-00	MYLAR	0.1MF	5%	50V	
C069	1-161-025-00	CERAMIC	0.1MF	10%	25V	
C070	1-101-004-00	CERAMIC	0.01MF		50V	
C071	1-102-113-00	CERAMIC	390PF	10%	50V	
C072	1-102-114-00	CERAMIC	470PF	10%	50V	
C073	1-106-172-00	MYLAR	0.001MF	5%	50V	
C074	1-123-379-00	ELECT	0.47MF	20%	50V	
C076	1-102-112-00	CERAMIC	330PF	10%	50V	
C077	1-102-520-00	CERAMIC	39PF	5%	50V	(AEP, HK MODEL)
	1-102-852-00	CERAMIC	47PF	5%	50V	(AS MODEL)
C078	1-102-754-00	CERAMIC	39PF	5%	50V	(AEP, AS MODEL)
C501	1-123-307-00	ELECT	100MF	20%	6.3V	
C502	1-123-330-00	ELECT	22MF	20%	16V	
C503	1-123-356-00	ELECT	10MF	20%	16V	
C504	1-123-380-00	ELECT	1MF	20%	50V	
C505	1-123-356-00	ELECT	10MF	20%	16V	
C506	1-130-515-11	MYLAR	0.0082MF	10%	50V	
C507	1-102-116-00	CERAMIC	680PF	10%	50V	
C508	1-136-160-00	MYLAR	0.039MF	5%	50V	
C509	1-102-978-00	CERAMIC	220PF	5%	50V	
C510	1-102-942-00	CERAMIC	5PF	1PF	50V	
C511	1-130-479-00	MYLAR	0.0047MF	5%	50V	
C513	1-102-824-00	CERAMIC	470PF	5%	50V	
C515	1-123-369-00	ELECT	4.7MF	20%	25V	
C516	1-123-307-00	ELECT	100MF	20%	6.3V	
C517	1-123-381-00	ELECT	2.2MF	20%	50V	
C518	1-101-004-00	CERAMIC	0.01MF		50V	
C519	1-130-475-00	MYLAR	0.0022MF	5%	50V	
C520	1-130-478-00	MYLAR	0.0039MF	5%	50V	
C521	1-102-978-00	CERAMIC	220PF	5%	50V	
C522	1-130-473-00	MYLAR	0.0015MF	5%	50V	
C523	1-123-379-00	ELECT	0.47MF	20%	50V	
C524	1-102-116-00	CERAMIC	680PF	10%	50V	
C525	1-101-004-00	CERAMIC	0.01MF		50V	
C526	1-101-004-00	CERAMIC	0.01MF		50V	
C527	1-101-004-00	CERAMIC	0.01MF		50V	
C528	1-130-475-00	MYLAR	0.0022MF	5%	50V	
C529	1-101-880-00	CERAMIC	47PF	5%	50V	
C530	1-123-380-00	ELECT	1MF	20%	50V	
C531	1-123-307-00	ELECT	100MF	20%	6.3V	
C532	1-101-004-00	CERAMIC	0.01MF		50V	
C537	1-123-380-00	ELECT	1MF	20%	50V	
C541	1-123-369-00	ELECT	4.7MF	20%	25V	
C542	1-130-502-00	MYLAR	680P	5%	50V	
C599	1-123-307-00	ELECT	100MF	20%	6.3V	
C701	1-123-380-00	ELECT	1MF	20%	50V	

When indicating parts by reference number, please include the board name.

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Ref.No	Part No.	Description	Remark
		DISCRIMINATOR	
CD001	1-404-380-00	DISCRIMINATOR, CERAMIC 5.5MHZ	
		FILTER	
CF001	1-527-263-00	CERAMIC FILTER (5.5MHZ) (AEP, AS MODEL)	
CF001	1-527-262-00	CERAMIC FILTER (6MHZ) (HK MODEL)	
		CONNECTOR	
CN002	*1-560-894-00	PIN, CONNECTOR 6P	
CN003	*1-560-890-00	PIN, CONNECTOR 2P	
CN005	*1-560-891-00	PIN, CONNECTOR 3P	
CN006	*1-560-890-00	PIN, CONNECTOR 2P	
CN007	*1-560-893-00	PIN, CONNECTOR 5P	
CN501	*1-560-893-00	PIN, CONNECTOR 5P	
		COMPOSITION CIRCUIT BLOCK	
CP501	1-232-788-11	COMPOSITION CIRCUIT BLOCK	
		TRIMMER	
CT001	1-404-134-00	TRAP, CERAMIC (5.5MHZ) (AEP, AS MODEL)	
CT001	1-409-333-00	TRAP, CERAMIC (6MHZ) (HK MODEL)	
		DIODE	
D003	8-719-911-19	DIODE 1SS119	
D007	8-719-911-19	DIODE 1SS119	
D502	8-719-911-19	DIODE 1SS119	
D701	8-719-812-41	DIODE TLR124	
		FILTER	
FL501	1-235-484-11	FILTER, BAND PASS (1.5MHZ)	
		IC	
IC001	8-759-602-16	IC M54572L (AEP, AS MODEL)	
IC002	8-759-276-07	IC TA7607AP	
IC003	8-759-103-70	IC UPC1391HA	
IC004	8-759-157-40	IC UPC574J	
IC005	8-759-729-03	IC NJM2903D	
IC006	8-759-040-46	IC MC14046BCP	
IC501	8-752-013-71	IC CX20137A	
		COIL	
L001	1-404-476-00	COIL, IF	
L002	1-404-476-00	COIL, IF	
L003	1-408-397-00	MICRO INDUCTOR 1UH	
L004	1-408-406-00	MICRO INDUCTOR 5.6UH	
L005	1-404-522-11	VIFT (AEP, HK MODEL)	
L005	1-404-428-00	VIFT (AS MODEL)	
L006	1-408-406-00	MICRO INDUCTOR 5.6UH	
L007	1-404-521-11	VIFT (AEP, HK MODEL)	
L007	1-404-427-00	VIFT (AS MODEL)	
L008	1-404-521-11	VIFT (AEP, HK MODEL)	
L008	1-404-427-00	VIFT (AS MODEL)	
L009	1-408-408-00	MICRO INDUCTOR 8.2UH	
L010	1-408-429-00	MICRO INDUCTOR 470UH	
L011	1-408-409-00	MICRO INDUCTOR 10UH	
L012	1-408-412-00	MICRO INDUCTOR 18UH	
L013	1-408-413-00	MICRO INDUCTOR 22UH	
L014	1-408-425-00	MICRO INDUCTOR 220UH (AEP, AS MODEL)	
L501	1-408-425-00	MICRO INDUCTOR 220UH	
		TRANSISTOR	
Q001	8-729-105-47	TRANSISTOR 2SC2026-L	
Q002	8-729-204-83	TRANSISTOR 2SA1048-GR	
Q003	8-729-600-27	TRANSISTOR 2SC634SP	
Q004	8-729-600-27	TRANSISTOR 2SC634SP	
Q006	8-729-603-30	TRANSISTOR 2SC403SP-3	
Q007	8-729-600-27	TRANSISTOR 2SC634SP	
Q010	8-729-204-83	TRANSISTOR 2SA1048-GR	
Q011	8-729-178-54	TRANSISTOR 2SC2785-F	
Q012	8-729-600-27	TRANSISTOR 2SC634SP	
Q501	8-729-900-89	TRANSISTOR DTC144ES	
Q703	8-729-600-27	TRANSISTOR 2SC634SP	
Q704	8-729-304-72	TRANSISTOR 2SA747	
		RESISTOR	
R003	1-249-425-11	CARBON 4.7K 5% 1/6W	
R004	1-247-815-00	CARBON 220 5% 1/6W	
R005	1-249-414-11	CARBON 560 5% 1/6W	
R006	1-249-425-11	CARBON 4.7K 5% 1/6W	
R007	1-247-823-00	CARBON 470 5% 1/6W	
R008	1-249-420-11	CARBON 1.8K 5% 1/6W	
R009	1-247-901-00	CARBON 820K 5% 1/6W	
R010	1-247-833-00	CARBON 1.2K 5% 1/6W	
R011	1-247-815-00	CARBON 220 5% 1/6W	
R012	1-249-417-11	CARBON 1K 5% 1/6W	
R013	1-247-833-00	CARBON 1.2K 5% 1/6W	(AEP, AS MODEL)
	1-247-839-00	CARBON 2.2K 5% 1/6W	(HK MODEL)
R014	1-247-823-00	CARBON 470 5% 1/6W	(AEP, AS MODEL)
	1-247-833-00	CARBON 1.2K 5% 1/6W	(HK MODEL)
R015	1-247-875-00	CARBON 68K 5% 1/6W	
R016	1-249-417-11	CARBON 1K 5% 1/6W	
R017	1-249-417-11	CARBON 1K 5% 1/6W	
R018	1-249-423-11	CARBON 3.3K 5% 1/6W	
R019	1-249-417-11	CARBON 1K 5% 1/6W	
R020	1-247-891-00	CARBON 330K 5% 1/6W	
R021	1-249-417-11	CARBON 1K 5% 1/6W	
R022	1-247-817-00	CARBON 270 5% 1/6W	
R023	1-247-821-00	CARBON 390 5% 1/6W	
R024	1-249-425-11	CARBON 4.7K 5% 1/6W	
R026	1-249-441-11	CARBON 100K 5% 1/6W	

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description				Remark
R027	1-249-435-11	CARBON	33K	5%	1/6W	
R028	1-249-423-11	CARBON	3.3K	5%	1/6W	
R030	1-247-891-00	CARBON	330K	5%	1/6W	
R031	1-247-839-00	CARBON	2.2K	5%	1/6W	
R032	1-249-440-11	CARBON	82K	5%	1/6W	
R035	1-249-429-11	CARBON	10K	5%	1/6W	
R036	1-249-433-11	CARBON	22K	5%	1/6W	
R037	1-249-429-11	CARBON	10K	5%	1/6W	
R038	1-247-839-00	CARBON	2.2K	5%	1/6W	
R039⚠	1-247-719-11	CARBON	3.3K	5%	1/4W	F
R040	1-249-433-11	CARBON	22K	5%	1/6W	
R041	1-249-433-11	CARBON	22K	5%	1/6W	
R042	1-249-433-11	CARBON	22K	5%	1/6W	
R043	1-249-433-11	CARBON	22K	5%	1/6W	
R044	1-249-434-11	CARBON	27K	5%	1/6W	
R045	1-247-857-00	CARBON	12K	5%	1/6W	
R046	1-247-859-00	CARBON	15K	5%	1/6W	
R047	1-249-433-11	CARBON	22K	5%	1/6W	
R048	1-249-429-11	CARBON	10K	5%	1/6W	
R049	1-249-425-11	CARBON	4.7K	5%	1/6W	
R051	1-247-903-00	CARBON	1M	5%	1/6W	
R052	1-249-433-11	CARBON	22K	5%	1/6W	
R053	1-247-883-00	CARBON	150K	5%	1/6W	
R054	1-247-887-00	CARBON	220K	5%	1/6W	
R055	1-249-429-11	CARBON	10K	5%	1/6W	
R056	1-249-433-11	CARBON	22K	5%	1/6W	
R057	1-247-839-00	CARBON	2.2K	5%	1/6W	
R058	1-249-429-11	CARBON	10K	5%	1/6W	
R059	1-247-903-00	CARBON	1M	5%	1/6W	
R060	1-247-080-00	CARBON	5.6	5%	1/4W	
R065	1-249-435-11	CARBON	33K	5%	1/6W	
R066	1-247-849-00	CARBON	5.6K	5%	1/6W	
R067	1-247-819-00	CARBON	330	5%	1/6W	
R068	1-247-885-00	CARBON	180K	5%	1/6W	
R070	1-249-429-11	CARBON	10K	5%	1/6W	
R076	1-247-839-00	CARBON	2.2K	5%	1/6W	
R081	1-249-420-11	CARBON	1.8K	5%	1/6W	(AEP MODEL)
	1-249-425-11	CARBON	4.7K	5%	1/6W	(AS, HK MODEL)
R084	1-247-803-00	CARBON	68	5%	1/6W	
R087	1-249-434-11	CARBON	27K	5%	1/6W	
R089	1-247-851-00	CARBON	6.8K	5%	1/6W	(AEP MODEL)
R501	1-249-435-11	CARBON	33K	5%	1/6W	
R502	1-249-429-11	CARBON	10K	5%	1/6W	
R503	1-249-423-11	CARBON	3.3K	5%	1/6W	
R504	1-249-423-11	CARBON	3.3K	5%	1/6W	
R505	1-249-422-11	CARBON	2.7K	5%	1/6W	
R506	1-247-839-00	CARBON	2.2K	5%	1/6W	
R507	1-249-422-11	CARBON	2.7K	5%	1/6W	
R508	1-249-415-11	CARBON	680	5%	1/6W	
R509	1-247-857-00	CARBON	12K	5%	1/6W	
R510	1-247-845-00	CARBON	3.9K	5%	1/6W	
R511	1-249-441-11	CARBON	100K	5%	1/6W	
R512	1-247-829-00	CARBON	820	5%	1/6W	
R513	1-247-829-00	CARBON	820	5%	1/6W	
R517	1-249-425-11	CARBON	4.7K	5%	1/6W	
R518	1-247-889-00	CARBON	270K	5%	1/6W	
R519	1-247-903-00	CARBON	1M	5%	1/6W	
R523	1-247-840-00	CARBON	2.4K	5%	1/6W	
R524	1-249-422-11	CARBON	2.7K	5%	1/6W	
R525	1-247-859-00	CARBON	15K	5%	1/6W	
R526	1-249-433-11	CARBON	22K	5%	1/6W	
R527	1-249-432-11	CARBON	18K	5%	1/6W	
R528	1-247-839-00	CARBON	2.2K	5%	1/6W	
R529	1-249-437-11	CARBON	47K	5%	1/6W	
R531	1-247-839-00	CARBON	2.2K	5%	1/6W	
R532	1-247-851-00	CARBON	6.8K	5%	1/6W	
R533	1-249-417-11	CARBON	1K	5%	1/6W	
R535	1-247-845-00	CARBON	3.9K	5%	1/6W	
R543	1-249-425-11	CARBON	4.7K	5%	1/6W	
R553	1-249-420-11	CARBON	1.8K	5%	1/6W	
R554	1-247-859-00	CARBON	15K	5%	1/6W	
R564	1-247-869-00	CARBON	39K	5%	1/6W	
R702	1-247-821-00	CARBON	390	5%	1/6W	
R703	1-247-851-00	CARBON	6.8K	5%	1/6W	
R704	1-249-414-11	CARBON	560	5%	1/6W	
R705	1-247-823-00	CARBON	470	5%	1/6W	
R706	1-249-425-11	CARBON	4.7K	5%	1/6W	
R707	1-249-415-11	CARBON	680	5%	1/6W	
R708	1-249-441-11	CARBON	100K	5%	1/6W	
R990	1-247-819-00	CARBON	330	5%	1/6W	

VARIABLE RESISTOR

Ref.No	Part No.	Description
RV001	1-228-993-00	RES, ADJ, CARBON 4.7K
RV501	1-228-995-00	RES, ADJ, CARBON 22K
RV502	1-228-994-00	RES, ADJ, CARBON 10K

FILTER

Ref.No	Part No.	Description
SWF001	1-404-433-00	SAWF

TUNER

Ref.No	Part No.	Description
TU001⚠	1-463-577-31	TUNER, ET (BT-883AD) (AEP MODEL)
TU001⚠	1-463-593-21	TUNER, ET (BT-882AD) (HK MODEL)
TU001⚠	1-463-661-21	TUNER, ET (BT-886D) (AS MODEL)

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*A-7060-458-A SS-66 BOARD, COMPLETE (AEP, HK MODEL)
*A-7060-546-A SS-66 BOARD, COMPLETE (AS MODEL)

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CAPACITOR

Ref.No	Part No.	Description			
C001	1-101-004-00	CERAMIC	0.01MF		50V
C002	1-123-318-00	ELECT	33MF	20%	16V
C003	1-102-959-00	CERAMIC	22PF	5%	50V
C004	1-102-959-00	CERAMIC	22PF	5%	50V

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description			Remark
C005	1-161-022-00	CERAMIC	0.056MF	10%	25V
C006	1-101-004-00	CERAMIC	0.01MF		50V
C010	1-101-004-00	CERAMIC	0.01MF		50V
C011	1-123-379-00	ELECT	0.47MF	20%	50V
C012	1-123-327-00	ELECT	33MF	20%	63V
C013	1-123-327-00	ELECT	33MF	20%	63V
C014	1-123-379-00	ELECT	0.47MF	20%	50V
C015	1-123-380-00	ELECT	1MF	20%	50V
C016	1-123-380-00	ELECT	1MF	20%	50V
C017	1-101-004-00	CERAMIC	0.01MF		50V
C018	1-123-306-00	ELECT	47MF	20%	10V
C019	1-123-306-00	ELECT	47MF	20%	10V
C020	1-161-025-00	CERAMIC	0.1MF	10%	25V
C021	1-161-025-00	CERAMIC	0.1MF	10%	25V
C022	1-101-004-00	CERAMIC	0.01MF		50V
C023	1-101-004-00	CERAMIC	0.01MF		50V
C024	1-101-004-00	CERAMIC	0.01MF		50V
C025	1-101-004-00	CERAMIC	0.01MF		50V
C026	1-101-004-00	CERAMIC	0.01MF		50V
C027	1-101-004-00	CERAMIC	0.01MF		50V
C028	1-161-051-00	CERAMIC	0.01MF	10%	50V
C029	1-161-021-00	CERAMIC	0.047MF	10%	25V
C202	1-161-055-00	CERAMIC	0.022MF	10%	25V
C203	1-123-306-00	ELECT	47MF	20%	10V
C205	1-130-481-00	MYLAR	0.0068MF	5%	50V
C206	1-124-271-00	ELECT	1MF	20%	50V
C207	1-102-074-00	CERAMIC	0.001MF	10%	50V
C208	1-161-055-00	CERAMIC	0.022MF	10%	25V
C209	1-161-055-00	CERAMIC	0.022MF	10%	25V
C210	1-161-047-00	CERAMIC	0.0047MF	10%	50V
C211	1-124-269-11	ELECT	0.33MF	20%	50V
C212	1-124-275-00	ELECT	2.2MF	20%	35V
C213	1-161-059-00	CERAMIC	0.047MF	10%	25V
C215	1-124-287-00	ELECT	10MF	20%	10V
C216	1-124-271-00	ELECT	1MF	20%	50V
C217	1-161-047-00	CERAMIC	0.0047MF	10%	50V
C218	1-130-487-00	MYLAR	0.022MF	5%	50V
C219	1-130-487-00	MYLAR	0.022MF	5%	50V
C220	1-130-491-00	MYLAR	0.047MF	5%	50V
C221	1-130-485-00	MYLAR	0.015MF	5%	50V
C222	1-124-287-00	ELECT	10MF	20%	10V
C224	1-161-059-00	CERAMIC	0.047MF	10%	25V
C226	1-161-055-00	CERAMIC	0.022MF	10%	25V
C227	1-161-013-00	CERAMIC	0.01MF	10%	25V
C228	1-102-074-00	CERAMIC	0.001MF	10%	50V
C229	1-161-013-00	CERAMIC	0.01MF	10%	25V
C230	1-161-055-00	CERAMIC	0.022MF	10%	25V
C231	1-123-618-00	ELECT	22MF	20%	6.3V
C232	1-161-059-00	CERAMIC	0.047MF	10%	25V
C233	1-161-013-00	CERAMIC	0.01MF	10%	25V
C234	1-123-608-00	ELECT	0.22MF	20%	50V
C235	1-123-356-00	ELECT	10MF	20%	16V
C238	1-161-025-00	CERAMIC	0.1MF	10%	25V

Ref.No	Part No.	Description			Remark
C280	1-124-271-00	ELECT	1MF	20%	50V

CONNECTOR

Ref.No	Part No.	Description
CN002	*1-560-895-00	PIN, CONNECTOR 7P
CN004	*1-560-899-00	PIN, CONNECTOR 11P
CN005	*1-560-891-00	PIN, CONNECTOR 3P
CN006	*1-560-895-00	PIN, CONNECTOR 7P
CN007	*1-560-900-00	PIN, CONNECTOR 12P
CN008	*1-560-895-00	PIN, CONNECTOR 7P
CN009	*1-560-898-00	PIN, CONNECTOR 10P
CN012	*1-560-892-00	PIN, CONNECTOR 4P
CN013	*1-560-890-00	PIN, CONNECTOR 2P
CN014	*1-560-892-00	PIN, CONNECTOR 4P
CN201	*1-560-892-00	PIN, CONNECTOR 4P
CN202	*1-560-892-00	PIN, CONNECTOR 4P
CN203	*1-560-895-00	PIN, CONNECTOR 7P
CN204	*1-560-894-00	PIN, CONNECTOR 6P
CN205	*1-560-891-00	PIN, CONNECTOR 3P

DIODE

Ref.No	Part No.	Description
D001	8-719-000-12	DIODE MC931
D002	8-719-911-19	DIODE 1SS119
D003	8-719-000-06	DIODE MC921
D004	8-719-200-82	DIODE 11ES2
D005	8-719-200-82	DIODE 11ES2
D006	8-719-911-19	DIODE 1SS119
D007	8-719-101-02	DIODE RD30EB4
D009	8-719-100-38	DIODE RD6.2EB2
D011	8-719-100-56	DIODE RD10EB1 (AEP, HK MODEL)
D012	8-719-911-19	DIODE 1SS119
D013	8-719-911-19	DIODE 1SS119
D014	8-719-911-19	DIODE 1SS119
D015	8-719-911-19	DIODE 1SS119
D016	8-719-200-82	DIODE 11ES2
D017	8-719-911-19	DIODE 1SS119
D019	8-719-100-38	DIODE RD6.2EB2
D020	8-719-100-38	DIODE RD6.2EB2
D021	8-719-000-06	DIODE MC921
D201	8-719-000-12	DIODE MC931
D202	8-719-911-19	DIODE 1SS119

FILTER

Ref.No	Part No.	Description
FL201	1-235-396-21	BPF
FL202	1-235-395-21	BPF

IC

Ref.No	Part No.	Description
IC001	8-752-800-90	IC CXP5048H-020Q
IC002	8-759-913-67	IC MB3763P
IC003	8-759-913-67	IC MB3763P
IC005	8-759-932-04	IC MB88306P
IC006	8-759-603-41	IC M58655P
IC202	8-752-013-50	IC CX20135
IC203	8-759-200-56	IC TC4526BP

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
IC204	8-759-132-40	IC UPC324C	
IC205	8-759-240-66	IC TC4066BP	
IC206	8-759-933-72	IC CXA1042P	

JACK

Ref.No	Part No.	Description	Remark
J001	1-507-562-00	JACK	

COIL

Ref.No	Part No.	Description	Remark
L001	1-408-421-00	MICRO INDUCTOR 100UH	
L201	1-408-411-00	MICRO INDUCTOR 15UH	

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q001	8-729-900-74	TRANSISTOR DTC143TS	
Q002	8-729-900-74	TRANSISTOR DTC143TS	
Q003	8-729-900-74	TRANSISTOR DTC143TS	
Q004	8-729-900-89	TRANSISTOR DTC144ES	
Q005	8-729-900-65	TRANSISTOR DTA144ES	
Q006	8-729-900-65	TRANSISTOR DTA144ES	
Q007	8-729-900-89	TRANSISTOR DTC144ES	
Q008	8-729-900-89	TRANSISTOR DTC144ES	
Q009	8-729-900-65	TRANSISTOR DTA144ES	
Q010	8-729-900-65	TRANSISTOR DTA144ES	
Q011	8-729-900-74	TRANSISTOR DTC143TS	
Q012	8-729-900-89	TRANSISTOR DTC144ES	
Q013	8-729-600-27	TRANSISTOR 2SC634SP	
Q014	8-729-900-89	TRANSISTOR DTC144ES	
Q015	8-729-600-27	TRANSISTOR 2SC634SP	
Q016	8-729-900-65	TRANSISTOR DTA144ES	
Q017	8-729-900-89	TRANSISTOR DTC144ES	
Q018	8-729-900-65	TRANSISTOR DTA144ES	
Q019	8-729-177-33	TRANSISTOR 2SD773-4	
Q023	8-729-900-65	TRANSISTOR DTA144ES	
Q024	8-729-900-89	TRANSISTOR DTC144ES	
Q025	8-729-900-89	TRANSISTOR DTC144ES	
Q026	8-729-600-27	TRANSISTOR 2SC634SP	
Q027	8-729-802-88	TRANSISTOR 2SB892-T	
Q028	8-729-900-89	TRANSISTOR DTC144ES	(AEP, HK MODEL)
Q029	8-729-900-65	TRANSISTOR DTA144ES	
Q030	8-729-900-89	TRANSISTOR DTC144ES	
Q031	8-729-900-65	TRANSISTOR DTA144ES	
Q210	8-729-600-27	TRANSISTOR 2SC634SP	
Q211	8-729-600-27	TRANSISTOR 2SC634SP	
Q212	8-729-204-83	TRANSISTOR 2SA1048-GR	
Q213	8-729-600-27	TRANSISTOR 2SC634SP	
Q214	8-729-204-83	TRANSISTOR 2SA1048-GR	
Q215	8-729-204-83	TRANSISTOR 2SA1048-GR	
Q216	8-729-900-89	TRANSISTOR DTC144ES	
Q217	8-729-900-65	TRANSISTOR DTA144ES	
Q218	8-729-900-65	TRANSISTOR DTA144ES	
Q219	8-729-900-89	TRANSISTOR DTC144ES	
Q220	8-729-900-89	TRANSISTOR DTC144ES	
Q221	8-729-900-65	TRANSISTOR DTA144ES	
Q222	8-729-178-54	TRANSISTOR 2SC2785F	
Q223	8-729-900-89	TRANSISTOR DTC144ES	
Q225	8-729-900-65	TRANSISTOR DTA144ES	
Q226	8-729-900-65	TRANSISTOR DTA144ES	
Q228	8-729-900-65	TRANSISTOR DTA144ES	
Q232	8-729-900-89	TRANSISTOR DTC144ES	

RESISTOR

Ref.No	Part No.	Description	Remark
R001	1-249-417-11	CARBON 1K 5% 1/6W	
R002	1-249-405-11	CARBON 100 5% 1/6W	
R003	1-249-429-11	CARBON 10K 5% 1/6W	
R004	1-249-429-11	CARBON 10K 5% 1/6W	
R005	1-249-429-11	CARBON 10K 5% 1/6W	
R006	1-249-429-11	CARBON 10K 5% 1/6W	
R007	1-249-429-11	CARBON 10K 5% 1/6W	
R008	1-249-429-11	CARBON 10K 5% 1/6W	
R009	1-249-437-11	CARBON 47K 5% 1/6W	
R010	1-249-429-11	CARBON 10K 5% 1/6W	
R011	1-249-429-11	CARBON 10K 5% 1/6W	
R012	1-249-429-11	CARBON 10K 5% 1/6W	
R014	1-249-429-11	CARBON 10K 5% 1/6W	
R015	1-249-429-11	CARBON 10K 5% 1/6W	
R017	1-247-859-00	CARBON 15K 5% 1/6W	
R018	1-247-857-00	CARBON 12K 5% 1/6W	
R019	1-247-859-00	CARBON 15K 5% 1/6W	
R020	1-247-857-00	CARBON 12K 5% 1/6W	
R021	1-247-823-00	CARBON 470 5% 1/6W	
R022	1-249-429-11	CARBON 10K 5% 1/6W	
R037	1-249-417-11	CARBON 1K 5% 1/6W	
R038	1-249-425-11	CARBON 4.7K 5% 1/6W	
R039	1-249-425-11	CARBON 4.7K 5% 1/6W	
R040	1-249-437-11	CARBON 47K 5% 1/6W	
R042	1-249-429-11	CARBON 10K 5% 1/6W	
R043	1-249-429-11	CARBON 10K 5% 1/6W	
R044	1-247-849-00	CARBON 5.6K 5% 1/6W	
R045	1-249-441-11	CARBON 100K 5% 1/6W	
R046	1-249-429-11	CARBON 10K 5% 1/6W	
R047	1-249-429-11	CARBON 10K 5% 1/6W	
R048	1-249-429-11	CARBON 10K 5% 1/6W	
R049	1-249-429-11	CARBON 10K 5% 1/6W	
R051	1-249-417-11	CARBON 1K 5% 1/6W	
R052	1-249-417-11	CARBON 1K 5% 1/6W	
R053	1-249-417-11	CARBON 1K 5% 1/6W	
R054	1-249-417-11	CARBON 1K 5% 1/6W	
R055	1-249-417-11	CARBON 1K 5% 1/6W	
R056	1-249-417-11	CARBON 1K 5% 1/6W	(AEP, HK MODEL)
R057	1-249-429-11	CARBON 10K 5% 1/6W	
R058	1-249-429-11	CARBON 10K 5% 1/6W	
R059	1-249-437-11	CARBON 47K 5% 1/6W	
R060	1-249-429-11	CARBON 10K 5% 1/6W	
R061	1-249-441-11	CARBON 100K 5% 1/6W	
R062	1-249-441-11	CARBON 100K 5% 1/6W	

When indicating parts by reference number, please include the board name.

SS-66

Ref.No	Part No.	Description				Remark
R063	1-249-441-11	CARBON	100K	5%	1/6W	
R064	1-249-429-11	CARBON	10K	5%	1/6W	
R065	1-249-429-11	CARBON	10K	5%	1/6W	
R066	1-249-437-11	CARBON	47K	5%	1/6W	
R067	1-249-437-11	CARBON	47K	5%	1/6W	
R068	1-249-437-11	CARBON	47K	5%	1/6W	
R069	1-249-437-11	CARBON	47K	5%	1/6W	
R070	1-249-437-11	CARBON	47K	5%	1/6W	
R071	1-249-437-11	CARBON	47K	5%	1/6W	
R072	1-249-437-11	CARBON	47K	5%	1/6W	
R073	1-249-429-11	CARBON	10K	5%	1/6W	
R074	1-249-429-11	CARBON	10K	5%	1/6W	
R075	1-249-417-11	CARBON	1K	5%	1/6W	
R076	1-249-437-11	CARBON	47K	5%	1/6W	
R077	1-247-839-00	CARBON	2.2K	5%	1/6W	
R201	1-249-432-11	CARBON	18K	5%	1/6W	
R202	1-249-429-11	CARBON	10K	5%	1/6W	
R203	1-249-441-11	CARBON	100K	5%	1/6W	
R204	1-249-441-11	CARBON	100K	5%	1/6W	
R205	1-249-435-11	CARBON	33K	5%	1/6W	
R206	1-249-435-11	CARBON	33K	5%	1/6W	
R207	1-247-881-00	CARBON	120K	5%	1/6W	
R208	1-247-885-00	CARBON	180K	5%	1/6W	
R209	1-249-441-11	CARBON	100K	5%	1/6W	
R210	1-249-432-11	CARBON	18K	5%	1/6W	
R211	1-247-873-00	CARBON	56K	5%	1/6W	
R212	1-249-441-11	CARBON	100K	5%	1/6W	
R213	1-249-434-11	CARBON	27K	5%	1/6W	
R214	1-249-441-11	CARBON	100K	5%	1/6W	
R215	1-249-441-11	CARBON	100K	5%	1/6W	
R216	1-249-429-11	CARBON	10K	5%	1/6W	
R217	1-249-437-11	CARBON	47K	5%	1/6W	
R218	1-249-429-11	CARBON	10K	5%	1/6W	
R219	1-249-433-11	CARBON	22K	5%	1/6W	
R221	1-249-423-11	CARBON	3.3K	5%	1/6W	
R222	1-247-889-00	CARBON	270K	5%	1/6W	
R223	1-247-903-00	CARBON	1M	5%	1/6W	
R224	1-249-425-11	CARBON	4.7K	5%	1/6W	
R225	1-249-429-11	CARBON	10K	5%	1/6W	
R227	1-249-425-11	CARBON	4.7K	5%	1/6W	
R228	1-247-873-00	CARBON	56K	5%	1/6W	
R231	1-249-432-11	CARBON	18K	5%	1/6W	
R232	1-247-899-00	CARBON	680K	5%	1/6W	
R233	1-249-417-11	CARBON	1K	5%	1/6W	
R234	1-247-845-00	CARBON	3.9K	5%	1/6W	
R235	1-249-422-11	CARBON	2.7K	5%	1/6W	
R236	1-249-429-11	CARBON	10K	5%	1/6W	
R237	1-249-437-11	CARBON	47K	5%	1/6W	
R239	1-247-897-00	CARBON	560K	5%	1/6W	
R240	1-249-417-11	CARBON	1K	5%	1/6W	
R241	1-249-441-11	CARBON	100K	5%	1/6W	
R242	1-247-887-00	CARBON	220K	5%	1/6W	
R243	1-249-417-11	CARBON	1K	5%	1/6W	
R244	1-249-429-11	CARBON	10K	5%	1/6W	
R245	1-247-849-00	CARBON	5.6K	5%	1/6W	
R246	1-247-833-00	CARBON	1.2K	5%	1/6W	
R247	1-249-432-11	CARBON	18K	5%	1/6W	
R248	1-249-420-11	CARBON	1.8K	5%	1/6W	
R249	1-249-419-11	CARBON	1.5K	5%	1/6W	
R250	1-247-845-00	CARBON	3.9K	5%	1/6W	
R251	1-247-857-00	CARBON	12K	5%	1/6W	
R252	1-247-859-00	CARBON	15K	5%	1/6W	
R253	1-249-435-11	CARBON	33K	5%	1/6W	
R254	1-249-435-11	CARBON	33K	5%	1/6W	
R255	1-249-417-11	CARBON	1K	5%	1/6W	
R256	1-247-859-00	CARBON	15K	5%	1/6W	
R257	1-247-845-00	CARBON	3.9K	5%	1/6W	
R258	1-247-853-00	CARBON	8.2K	5%	1/6W	
R259	1-247-857-00	CARBON	12K	5%	1/6W	
R261	1-249-433-11	CARBON	22K	5%	1/6W	
R264	1-249-433-11	CARBON	22K	5%	1/6W	
R265	1-249-434-11	CARBON	27K	5%	1/6W	
R266	1-247-875-00	CARBON	68K	5%	1/6W	
R271	1-249-433-11	CARBON	22K	5%	1/6W	
R273	1-249-405-11	CARBON	100	5%	1/6W	
R279	1-249-429-11	CARBON	10K	5%	1/6W	
R280	1-249-437-11	CARBON	47K	5%	1/6W	
R281	1-249-433-11	CARBON	22K	5%	1/6W	
R282	1-247-889-00	CARBON	270K	5%	1/6W	
R283	1-247-889-00	CARBON	270K	5%	1/6W	
R284	1-247-881-00	CARBON	120K	5%	1/6W	
R285	1-249-425-11	CARBON	4.7K	5%	1/6W	
R290	1-249-434-11	CARBON	27K	5%	1/6W	
R291	1-247-887-00	CARBON	220K	5%	1/6W	
R296	1-247-811-00	CARBON	150	5%	1/6W	
R297	1-247-815-00	CARBON	220	5%	1/6W	

VARIABLE RESISTOR

RV001	1-228-999-00	RES, ADJ, CARBON 470K
RV201	1-228-998-00	RES, ADJ, CARBON 220K
RV202	1-228-995-00	RES, ADJ, CARBON 22K
RV203	1-228-999-00	RES, ADJ, CARBON 470K
RV204	1-228-994-00	RES, ADJ, CARBON 10K
RV207	1-230-660-11	RES, VAR, CARBON 1K

SWITCH

S001	1-570-157-11	SWITCH, SLIDE (AFT)
S002	1-554-174-00	SWITCH, KEY BOARD (TUNE:+)
S003	1-554-174-00	SWITCH, KEY BOARD (TUNE:-)
S004	1-554-174-00	SWITCH, KEY BOARD (SELECT)
S005	1-554-174-00	SWITCH, KEY BOARD (CH CLR)

THERMISTOR

⚠THP001	1-806-886-11	THERMISTOR (POSITIVE)

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

SS-66 LS-9 TE-1 LD-1 MS-4

RS-22 TE-7 PW-29 PS-124

CRYSTAL

Ref.No	Part No.	Description	Remark
X001	1-567-346-11	OSCILLATOR, CERAMIC	

* * *

LS-9 BOARD

CONNECTOR

Ref.No	Part No.	Description	Remark
CN904	*1-564-613-21	PIN, CONNECTOR (HOOK TYPE)	

* * *

Ref.No	Part No.	Description	Remark
	*1-615-316-11	TE-1 BOARD	
	*3-689-011-01	HOLDER, SENSOR	

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q004	8-729-700-08	NJL7141E	

* * *

Ref.No	Part No.	Description	Remark
	*1-613-367-11	LD-1 BOARD	

DIODE

Ref.No	Part No.	Description	Remark
D001	8-719-928-54	DIODE GL-450S	

* * *

Ref.No	Part No.	Description	Remark
	*A-7070-055-A	MS-4 BOARD	

CAPACITOR

Ref.No	Part No.	Description	Remark
C902	1-163-038-00	CERAMIC CHIP 0.1MF	25V

* * *

Ref.No	Part No.	Description	Remark
	*1-620-043-11	RS-22 BOARD	
	*3-689-076-01	HOLDER, REEL SENSOR	

DIODE

Ref.No	Part No.	Description	Remark
PH201	8-719-751-43	DIODE NJL5141E-AB	
PH202	8-719-751-43	DIODE NJL5141E-AB	
PH203	8-719-751-43	DIODE NJL5141E-AB	

* * *

Ref.No	Part No.	Description	Remark
	*1-620-045-11	TE-7 BOARD	
	*3-689-011-01	HOLDER, SENSOR	

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q003	8-729-700-08	NJL7141E	

SWITCH

Ref.No	Part No.	Description	Remark
S001	1-553-226-00	SWITCH, LEAF	

* * *

Ref.No	Part No.	Description	Remark
	*1-620-041-11	PW-29 BOARD	
	*3-695-988-01	HOLDER (RE), LED	

DIODE

Ref.No	Part No.	Description	Remark
D201	8-719-812-33	DIODE TLG123A	
D202	8-719-812-32	DIODE TLY123	

RESISTOR

Ref.No	Part No.	Description	Remark
R201	1-247-815-00	CARBON 220 5% 1/6W	
R202	1-247-819-00	CARBON 330 5% 1/6W	

SWITCH

Ref.No	Part No.	Description	Remark
S201	1-554-174-00	SWITCH, KEY BOARD	
S202	1-554-174-00	SWITCH, KEY BOARD	

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Ref.No	Part No.	Description	Remark
	*1-619-882-11	PS-124 BOARD	
	1-533-189-11	HOLDER, FUSE	

CAPACITOR

Ref.No	Part No.	Description	Remark
C101	⚠.1-136-472-11	FILM 0.1MF 20%	250V
C102	⚠.1-161-742-00	CERAMIC 0.0022MF 20%	400V
C103	⚠.1-161-742-00	CERAMIC 0.0022MF 20%	400V
C104	⚠.1-161-742-00	CERAMIC 0.0022MF 20%	400V
C105	⚠.1-161-742-00	CERAMIC 0.0022MF 20%	400V
C106	1-123-338-00	ELECT 2200MF 20%	25V

CONNECTOR

Ref.No	Part No.	Description	Remark
CN101	*1-560-890-00	PIN, CONNECTOR 2P	
CN102	*1-560-891-00	PIN, CONNECTOR 3P	

DIODE

Ref.No	Part No.	Description	Remark
D101	⚠.8-719-500-35	DIODE D2SB10	

FUSE

Ref.No	Part No.	Description	Remark
F101	⚠.1-532-259-00	FUSE, TIME-LAG T1.6A	
F102	⚠.1-532-203-00	FUSE, TIME-LAG T2A	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

PS-124 PS-125 PS-126 PS-127 FT-16

TRANSFORMER

Ref.No	Part No.	Description	Remark
T102 ⚠	.1-421-765-11	FILTER, LINE	

* * *

*1-619-883-11 PS-125 BOARD
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	1-533-189-11	HOLDER, FUSE	
	7-685-646-71	SCREW +BVTP 3x8 TYPE2 IT-3	
	7-685-646-81	SCREW +BVTP 3x8 TYPE2	

CAPACITOR

C201	1-123-333-00	ELECT 100MF 20% 25V	
C202	1-123-332-00	ELECT 47MF 20% 16V	
C203	1-123-306-00	ELECT 47MF 20% 10V	
C204	1-124-636-00	ELECT 3300MF 20% 25V	
C205	1-123-307-00	ELECT 100MF 20% 10V	
C207	1-123-307-00	ELECT 100MF 20% 10V	
C211	1-123-302-00	ELECT 4700MF 20% 6.3V	
C212	1-126-107-51	ELECT 10000MF 20% 16V	

CONNECTOR

CN201	*1-560-891-00	PIN, CONNECTOR 3P	
CN206	*1-560-890-00	PIN, CONNECTOR 2P	
CN207	*1-560-896-00	PIN, CONNECTOR 8P	
CN208	*1-560-892-00	PIN, CONNECTOR 4P	

DIODE

D201 ⚠	.8-719-500-35	DIODE D2SB10	
D202	8-719-100-37	DIODE RD6.2EB1	
D203	8-719-100-58	DIODE RD10EB3	
D204	8-719-100-39	DIODE RD6.2EB3	
D205	8-719-200-82	DIODE 11ES2	
D206	8-719-200-82	DIODE 11ES2	
D207	8-719-911-19	DIODE 1SS119	
D208 ⚠	.8-719-500-32	DIODE D3SB10	

FUSE

F201 ⚠	.1-532-259-00	FUSE, TIME-LAG T1.6A 250V	
F202 ⚠	.1-532-286-00	FUSE, TIME-LAG T2.5A 250V	

IC LINK

PS201 ⚠	.1-532-685-00	LINK, IC	

TRANSISTOR

Q201 ⚠	.8-729-804-17	TRANSISTOR 2SD1666-R	
Q203 ⚠	.8-729-600-27	TRANSISTOR 2SC634SP	
Q204 ⚠	.8-729-804-17	TRANSISTOR 2SD1666-R	
Q210	5-729-900-80	TRANSISTOR DTC114ES	
Q211	8-729-900-61	TRANSISTOR DTA114ES	
Q212	8-729-900-89	TRANSISTOR DTC144ES	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

RESISTOR

Ref.No	Part No.	Description	Remark
R201	1-249-417-11	CARBON 1K 5% 1/6W	
R202	1-247-829-00	CARBON 820 5% 1/6W	
R203	1-249-415-11	CARBON 680 5% 1/6W	
R204	1-249-417-11	CARBON 1K 5% 1/6W	
R205	1-247-815-00	CARBON 220 5% 1/6W	
R210 ⚠	.1-247-799-00	CARBON 47 5% 1/6W	
R211 ⚠	.1-247-799-00	CARBON 47 5% 1/6W	
R212	1-247-803-00	CARBON 68 5% 1/6W	
R221	1-249-429-11	CARBON 10K 5% 1/6W	

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*1-619-884-11 PS-126 BOARD
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IC

IC301 ⚠	.8-749-900-33	IC STK5363	

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*1-619-885-11 PS-127 BOARD
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TRANSISTOR

Q401 ⚠	.8-729-804-17	TRANSISTOR 2SD1666-R	
Q402	8-729-600-27	TRANSISTOR 2SC634SP	

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*A-7060-454-A FT-16 BOARD, COMPLETE
****

IC

IC101	8-741-138-70	IC BX-1387	

INDICATOR TUBE

ND101	1-519-404-11	INDICATOR TUBE, FLUORESCENT	

SWITCH

S101	1-554-174-00	SWITCH, KEY BOARD (TIMER)	
S102	1-554-174-00	SWITCH, KEY BOARD (QUICK TIMER)	
S103	1-554-174-00	SWITCH, KEY BOARD (CLOCK SET)	
S104	1-554-174-00	SWITCH, KEY BOARD (TIMER REC)	
S105	1-554-174-00	SWITCH, KEY BOARD (CHECK)	
S106	1-554-174-00	SWITCH, KEY BOARD (+)	
S107	1-554-174-00	SWITCH, KEY BOARD (-)	
S108	1-554-174-00	SWITCH, KEY BOARD (NEXT)	
S109	1-554-174-00	SWITCH, KEY BOARD (TV/VTR)	
S110	1-554-174-00	SWITCH, KEY BOARD (CLR)	
S111	1-554-174-00	SWITCH, KEY BOARD (SP/LP)	
S112	1-553-716-00	SWITCH, SLIDE (LINE/TUNER)	
S113	1-554-088-00	SWITCH, KEY BOARD (REC)	
S114	1-554-174-00	SWITCH, KEY BOARD (PB)	

Ref.No	Part No.	Description	Remark
S115	1-554-174-00	SWITCH, KEY BOARD (REW)	
S116	1-554-174-00	SWITCH, KEY BOARD (PAUSE)	
S117	1-554-174-00	SWITCH, KEY BOARD (TAPE, RETURN)	
S118	1-554-174-00	SWITCH, KEY BOARD (FF)	
S119	1-554-174-00	SWITCH, KEY BOARD (STOP)	
S120	1-554-174-00	SWITCH, KEY BOARD (COUNTER RESET)	

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*A-7060-455-A FT-17 BOARD, COMPLETE (AEP MODEL)
*A-7060-547-A FT-17 BOARD, COMPLETE (AS MODEL)
*A-7060-551-A FT-17 BOARD, COMPLETE (HK MODEL)

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*3-682-419-11 HOLDER, P.C.B
3-711-945-01 HOLDER, FIP

CAPACITOR

C002	1-102-851-00	CERAMIC	15PF	5%	50V
C003	1-102-963-00	CERAMIC	33PF	5%	50V
C004	1-102-963-00	CERAMIC	33PF	5%	50V
C005	1-161-059-00	CERAMIC	0.047MF	10%	25V
C006	1-161-059-00	CERAMIC	0.047MF	10%	25V
C007	1-161-059-00	CERAMIC	0.047MF	10%	25V
C008	1-123-356-00	ELECT	10MF	20%	16V
C009	1-123-356-00	ELECT	10MF	20%	16V
C010	1-123-356-00	ELECT	10MF	20%	16V
C011	1-123-380-00	ELECT	1MF	20%	50V
C012	1-123-306-00	ELECT	47MF	20%	6.3V

CONNECTOR

CN001	*1-564-006-11	PIN, CONNECTOR 7P

TRIMMER

CV001	1-141-294-11	CAP, TRIMMER

DIODE

D001	8-719-911-19	DIODE 1SS119
D002	8-719-911-19	DIODE 1SS119
D003	8-719-911-19	DIODE 1SS119
D004	8-719-911-19	DIODE 1SS119 (AEP, AS MODEL)
D005	8-719-100-38	DIODE RD6.2EB2
D006	8-719-100-38	DIODE RD6.2EB2
D007	8-719-100-38	DIODE RD6.2EB2

IC

IC001	8-752-800-85	IC CXP5016H-153Q
IC002	8-752-800-87	IC CXP5034H-024Q
IC003	8-759-920-14	IC S-8053ALR

TRANSISTOR

Q001	8-729-902-11	TRANSISTOR 2SC2021-R
Q002	8-729-902-11	TRANSISTOR 2SC2021-R

Ref.No	Part No.	Description				Remark

RESISTOR

R002	1-249-417-11	CARBON	1K	5%	1/6W
R003	1-249-417-11	CARBON	1K	5%	1/6W
R004	1-249-417-11	CARBON	1K	5%	1/6W
R005	1-249-417-11	CARBON	1K	5%	1/6W
R006	1-249-429-11	CARBON	10K	5%	1/6W
R007	1-249-437-11	CARBON	47K	5%	1/6W
R008	1-249-437-11	CARBON	47K	5%	1/6W
R009	1-249-441-11	CARBON	100K	5%	1/6W
R010	1-249-425-11	CARBON	4.7K	5%	1/6W
R011	1-249-425-11	CARBON	4.7K	5%	1/6W
R012	1-249-425-11	CARBON	4.7K	5%	1/6W
R013	1-249-425-11	CARBON	4.7K	5%	1/6W
R014	1-249-437-11	CARBON	47K	5%	1/6W
R015	1-249-437-11	CARBON	47K	5%	1/6W
R016	1-249-437-11	CARBON	47K	5%	1/6W
R017	1-249-417-11	CARBON	1K	5%	1/6W
R018	1-249-417-11	CARBON	1K	5%	1/6W
R019	1-249-425-11	CARBON	4.7K	5%	1/6W
R020	1-249-425-11	CARBON	4.7K	5%	1/6W
R023	1-249-437-11	CARBON	47K	5%	1/6W
R024	1-249-437-11	CARBON	47K	5%	1/6W
R025	1-249-437-11	CARBON	47K	5%	1/6W
R026	1-249-437-11	CARBON	47K	5%	1/6W
R027	1-249-441-11	CARBON	100K	5%	1/6W
R028	1-249-405-11	CARBON	100	5%	1/6W
R029	1-249-437-11	CARBON	47K	5%	1/6W
R031	1-249-441-11	CARBON	100K	5%	1/6W
R032	1-249-425-11	CARBON	4.7K	5%	1/6W
R034	1-249-441-11	CARBON	100K	5%	1/6W
R035	1-249-437-11	CARBON	47K	5%	1/6W
R036	1-249-437-11	CARBON	47K	5%	1/6W
R037	1-249-417-11	CARBON	1K	5%	1/6W
R038	1-249-417-11	CARBON	1K	5%	1/6W
R039	1-249-417-11	CARBON	1K	5%	1/6W

CRYSTAL

X001	1-567-519-11	VIBRATOR, CRYSTAL
X002	1-567-346-11	OSCILLATOR, CERAMIC

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When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
		MISCELLANEOUS	
	A-7090-029-A	M-SW ASSY	
	⚠1-464-692-11	MODULATOR, RF (RFU-858:HK MODEL)	
	⚠1-464-732-11	MODULATOR, RF (RFU-854:AS MODEL)	
	⚠1-464-690-11	MODULATOR, RF (RFU-857:AEP MODEL)	
	⚠1-534-817-31	CORD, POWER	
	1-535-535-11	TERMINAL, SHAFT GROUND	
	*1-555-110-00	CABLE, PIN	
	8-835-138-01	MOTOR, DC (DNR-5301B)	
C901	1-161-073-11	CAP, CERAMIC 0.033MF X	
M901	A-7090-030-A	MOTOR ASSY, L	
M902	8-835-220-01	MOTOR, DC BHF-2804B	
M903	8-835-110-01	MOTOR, DC (DNR-5301A)	
PM901	1-454-377-11	SOLENOID, PLUNGER	
S901	1-554-942-11	SWITCH, PUSH	
T901	⚠1-448-647-11	TRANSFORMER, POWER	

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ACCESSORIES AND PACKING MATERIALS

Ref.No	Part No.	Description	Remark
	A-6767-236-A	COMMANDER ASSY	
	1-551-513-00	CABLE, COAXAL ASSY	
	1-556-893-00	CORD ASSY, COAXIAL	
	3-694-484-01	DRIVER, VOLUME	
	*3-711-999-01	INDIVIDUAL CARTON	
	*3-713-401-01	CUSHION (LOWER)	
	*3-713-402-01	CUSHION (UPPER)	
	3-765-601-11	MANUAL, INSTRUCTION (ENGLISH:AEP/AS MODEL)	
	3-765-601-41	MANUAL, INSTRUCTION (FRENCH, GERMANY, DUTCH:AEP MODEL)	
	3-765-601-51	MANUAL, INSTRUCTION (SPANISH, SWDISH, ITALIAN:AEP MODEL)	
	3-765-601-71	(ENGLISH, CHINESE:HK MODEL)	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

SECTION 7

MECHANICAL ADJUSTMENT

7-1. MECHANICAL CHECK, ADJUSTMENT AND PREPARATIONS FOR REPLACEMENT

Note: **Regarding the removal procedures of the cabinet and board, see Section 2.**

7-1-1. Cassette Compartment Assembly and Operation without Tape Inserted

Note: The set will not operate if there is a strong light source near it.

<Loading>

1) Remove the front panel and covers (upper, lower) according to item 2, 2-1.
2) Connect a power supply and press the power button to turn on.
3) Press the EJECT button.
4) Disconnect power supply.
5) According to item Section 2, 2-4., remove the cassette compartment assembly. (Do not disconnect connector CN20 (white) 5P.)
6) Place tape over the pin coming out of the push switch ❷.
7) Connect power supply and press the power button to turn on.
8) Press door gear coupling plate ❸ in the direction of arrow Ⓐ. (Refer to Fig. 7-1.)

<Putting into Playback State>

1) Perform the loading procedure.
2) Place the rubber band ❹ as shown between S reel and T reel sides.
3) Place a cap ❺ over the LED assembly.
4) Press the playback button, and when the T reel side starts to rotate, press the tension regulator arm assembly ❻ in the direction of arrow Ⓑ. (At this time, the tension regulator band is released and the S reel side rotates.)
5) Press the stop button to stop. (Fig. 7-1.)

<Putting into Recording State>

1) Perform the loading procedure.
2) Place a rubber band ❹ as shown between the S reel and T reels.
3) Place a cap ❺ over the LED assembly.
4) Press the recording button, and when the T reel side starts to rotate, push the tension regulator arm assembly ❻ in the direction of arrow Ⓑ. (At this time, the tension regulator band is released and the S reel side rotates.)
5) Press the stop button to stop. (Fig. 7-1.)

<Eject>

1) Press the EJECT button. (Press the C.L. slider ❼ in the direction of arrow Ⓒ when opening the door gear coupling plate ❸.) (Fig. 7-1.)

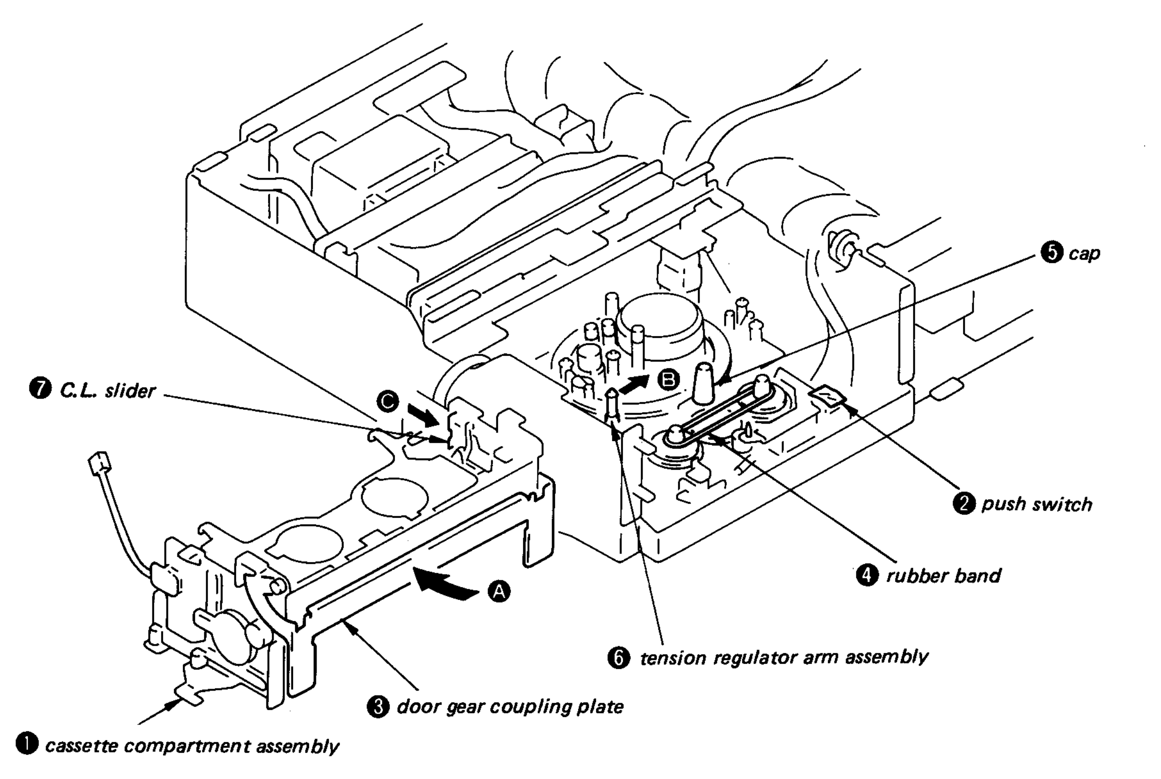

❺ cap
❼ C.L. slider
Ⓒ
Ⓑ
❷ push switch
❹ rubber band
Ⓐ
❻ tension regulator arm assembly
❸ door gear coupling plate
❶ cassette compartment assembly

Fig. 7-1

7-1-2. Handling of Mode Selector

<Location of Parts (exterior)>

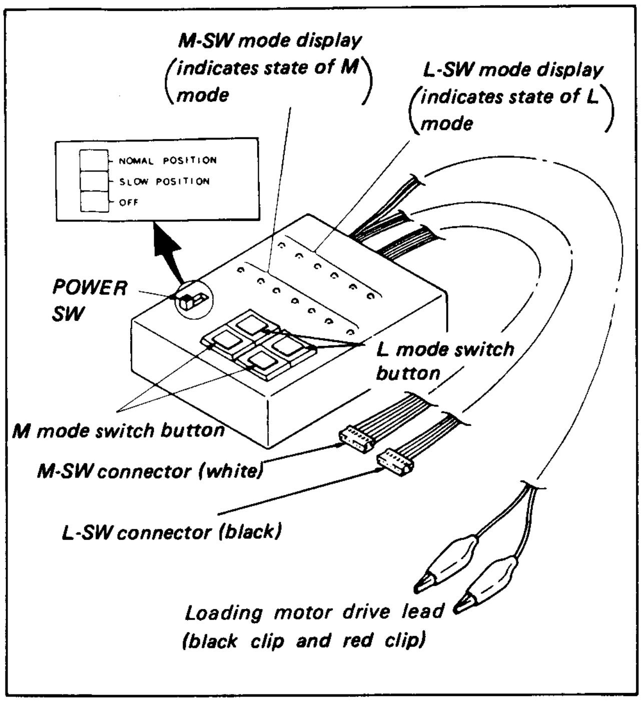

M-SW mode display
(indicates state of M mode)
L-SW mode display
(indicates state of L mode)
NOMAL POSITION
SLOW POSITION
OFF
POWER SW
L mode switch button
M mode switch button
M-SW connector (white)
L-SW connector (black)
Loading motor drive lead
(black clip and red clip)

Fig. 7-2

<Connection>

1) Remove the two connectors ❶ on the SS-66 board.
2) Remove the MD-14 board according to item Section 2, 2-9.
3) Insert the M-SW connector (6P connector, 6 harness, white) ❸ into the set MS-4 board.
4) Insert the L-SW connector (6P connector, 4 harness, black) ❹ into the set LS-9 board.
5) Connect the loading motor drive lead ❺ red lead side to the loading motor red clip and the brown lead to the black clip. (Fig. 7-3.)

<Caution>

1) When operating L-SW, be sure to set the M-SW mode to LOADING/UNLOADING.
2) When operating M-SW, be sure to set the L-SW mode to TOP or END.

<Handling>

BLANK lighs up regardless of L MODE or M MODE when it is in neither mode during select.

1) L MODE
   - When the L mode switch button right side is pressed continuously, the display lights up from LOADING TOP → LOADING END, in order from left to right.
   - To go from LOADING END→LOADING TOP, press the left button continuously until the desired MODE is reached.
   - In slow position, the L mode operates more slowly than for normal position.
2) M MODE
   - Set L-SW to LOADING TOP before performing EJECT.
   - Set L-SW to LOADING END to perform FF/REW→RVS or RVS → FF/REW.
   - When the right M MODE switch button is pressed continuously, the dislay lights up from EJECT → RVS in order from left to right.
   - To go from RVS→EJECT, press the left side switch button continuously until the desired MODE is reached.

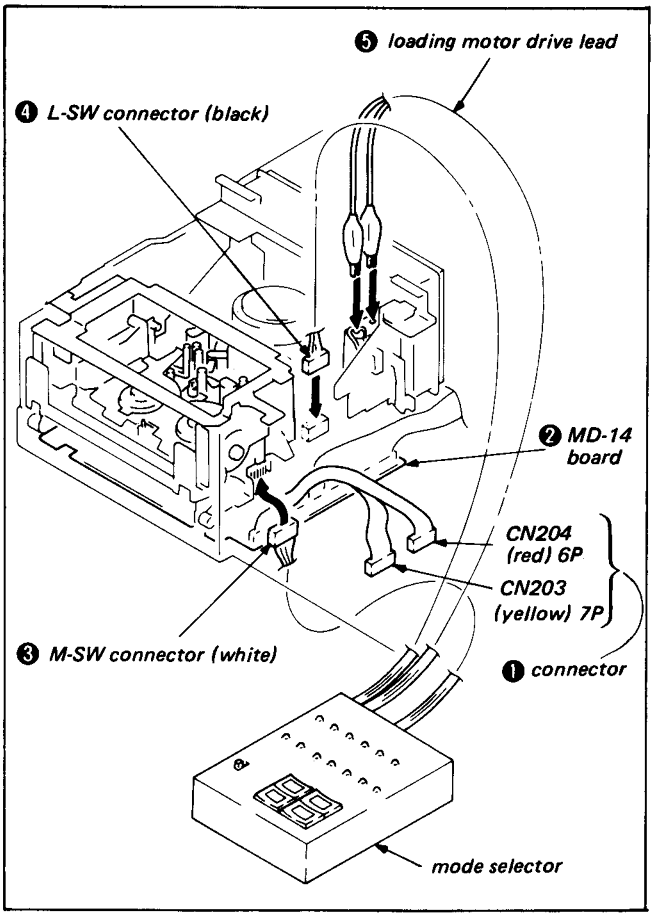
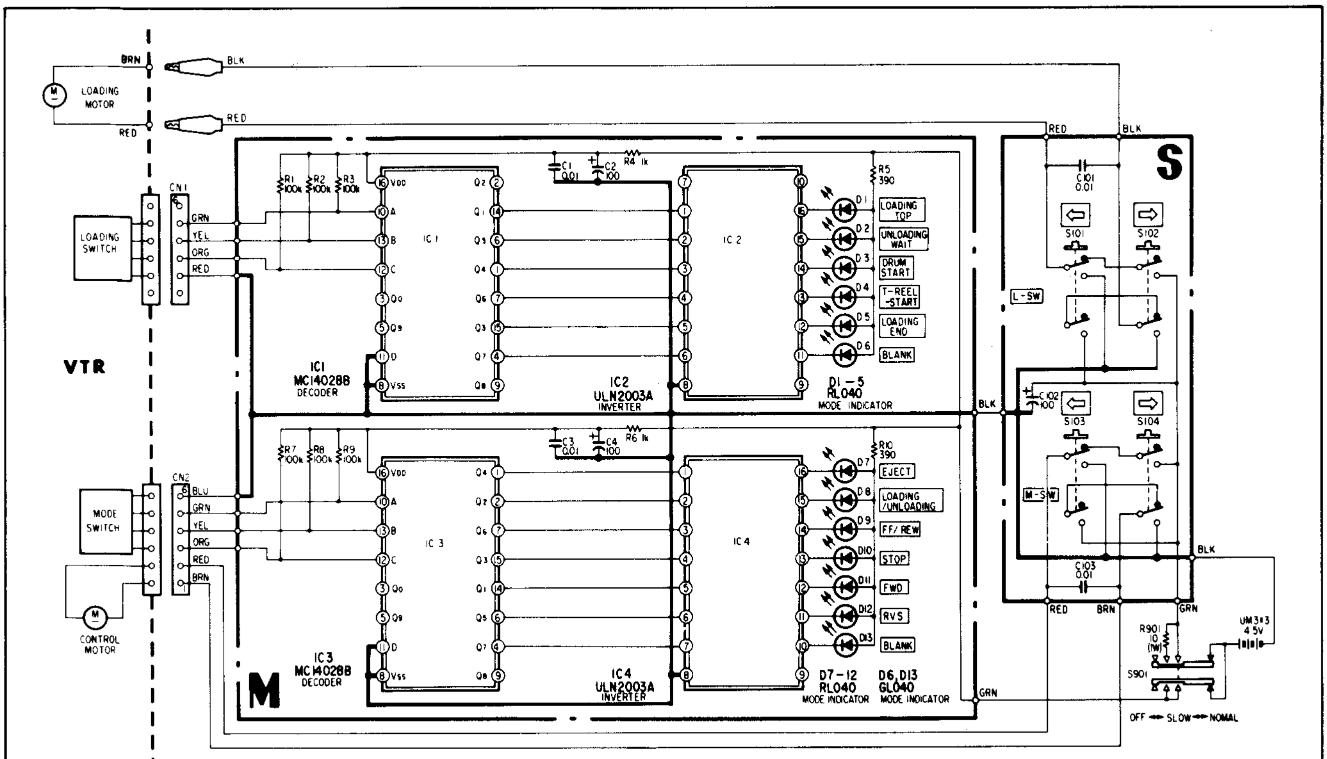

❺ loading motor drive lead
❹ L-SW connector (black)
❷ MD-14 board
CN204 (red) 6P
CN203 (yellow) 7P
❸ M-SW connector (white)
❶ connector
mode selector

Fig. 7-3

<Mode Selector Schematic>


BRN
BLK
LOADING MOTOR
RED
CN1
LOADING SWITCH
GRN
YEL
ORG
RED
R1 100k
R2 100k
R3 100k
R4 1k
C1 0.01
C2 100
R5 390
VDD
IC1
IC2
Q2
Q1
Q5
Q4
Q6
Q3
Q7
Q8
A
B
C
Q0
Q9
D
VSS
IC1 MC14028B DECODER
IC2 ULN2003A INVERTER
D1
D2
D3
D4
D5
D6
LOADING TOP
UNLOADING WAIT
DRUM START
T-REEL -START
LOADING END
BLANK
D1-5 RL040 MODE INDICATOR
VTR
S
C101 0.01
S101
S102
L-SW
C102 100
S103
S104
M-SW
C103 0.01
BLK
RED
BRN
GRN
CN2
BLU
MODE SWITCH
CONTROL MOTOR
R7 100k
R8 100k
R9 100k
C3 0.01
C4 100
R6 1k
R10 390
IC3
IC4
D7
D8
D9
D10
D11
D12
D13
EJECT
LOADING /UNLOADING
FF/REW
STOP
FWD
RVS
BLANK
IC3 MC14028B DECODER
IC4 ULN2003A INVERTER
D7-12 RL040 MODE INDICATOR
D6,D13 GL040 MODE INDICATOR
M
R901 10 (1W)
UM3×3 4.5V
S901
OFF ◂▸ SLOW ◂▸ NOMAL

M-SW
(IC 3)

DECODER INPUT			MODE	LED NO.
C	B	A		
0	0	0		
0	0	1	FWD	D11
0	1	0	LOADING/UNLOADING	D8
0	1	1	STOP	D10
1	0	0	EJECT	D7
1	0	1	RVS	D12
1	1	0	FF/REW	D9
1	1	1	BLANK	D13

0 : INPUT LEVEL L
1 : INPUT LEVEL H

L-SW
(IC 1)

DECODER INPUT			MODE	LED NO.
C	B	A		
0	0	0		
0	0	1	LOADING TOP	D1
0	1	0		
0	1	1	LOADING END	D5
1	0	0	DRUM START	D3
1	0	1	UNLOADING WAIT	D2
1	1	0	T-REEL-START	D4
1	1	1	BLANK	D6

SWITCH ⇦	SWITCH ⇨	DIRECTION OF MOTOR REVOLUTION
OFF	OFF	STOP
ON	OFF	⇦
OFF	ON	⇨

⇦ L-SW LOADING END → LOADING TOP
M-SW RVS → EJECT

⇨ L-SW LOADING TOP → LOADING END
M-SW EJECT → RVS

<Mode Selector Parts List>

Symbol	Part No.	Part Name		
		capacitors		
C1	1-108-579-00	mylar	0.01μF	50V
C2	1-123-333-00	electrolytic	100μF	24V
C3	1-108-579-00	mylar	0.01μF	50V
C4	1-123-333-00	electrolytic	100μF	24V
C101	1-108-579-00	mylar	0.01μF	50V
C103	1-108-579-00	mylar	0.01μF	50V
		Diodes		
D1	8-179-812-31	diode	RL040	
D2	8-179-812-31	diode	RL040	
D3	8-179-812-31	diode	RL040	
D4	8-179-812-31	diode	RL040	
D5	8-179-812-31	diode	RL040	
D6	8-719-812-33	diode	GL040	
D7	8-179-812-31	diode	RL040	
D8	8-179-812-31	diode	RL040	
D9	8-179-812-31	diode	RL040	
D10	8-179-812-31	diode	RL040	
D11	8-179-812-31	diode	RL040	
D12	8-179-812-31	diode	RL040	
D13	8-719-812-33	diode	GL040	

Symbol	Part No.	Part Name		
		IC		
IC1	8-759-240-28	IC	TC4028BP	
IC2	8-759-120-03	IC	μPA2003A	
IC3	8-759-240-28	IC	TC4028BP	
IC4	8-759-120-03	IC	μPA2003A	
		resistor		
R1	1-247-179-00	carbon	100K	1/4W
R2	1-247-179-00	carbon	100K	1/4W
R3	1-247-179-00	carbon	100K	1/4W
R4	1-247-131-00	carbon	1K	1/4W
R5	1-247-121-00	carbon	390	1/4W
R6	1-247-131-00	carbon	1K	1/4W
R7	1-247-179-00	carbon	100K	1/4W
R8	1-247-179-00	carbon	100K	1/4W
R9	1-247-179-00	carbon	100K	1/4W
R10	1-247-121-00	carbon	390	1/4W
R901	1-214-594-00	metal film	10	1W

7-2. PERIODIC CHECK AND MAINTENANCE

Please perform the following periodic checks and maintenance in order to obtain optimum set function and performance, and to keep the mechanism and tape in good condition. Also, perform the maintenance below after repair, regardless of the length of time the set has been used by the user.

7-2-1. Cleaning of Rotary Drum Assembly

1) Press a chamois cloth (Ref. No. J-2) soaked in cleaning fluid (Ref No. J-1) lightly against the rotary drum assembly, and slowly rotate the rotary upper drum assembly counterclockwise by hand to clean.

Note: Do not use the power supply to rotate the motor, and do not rotate the drum clockwise by hand.
Also, there is a danger of damaging the head tip if the chamois cloth is moved vertically relative to the head tip, so please follow the instruction above for cleaning.

7-2-2. Cleaning of Tape Path

1) Place the cassette compartment assembly in EJECT state, and clean the tape path (No. 1 ~ No. 11 guides, capstan shaft, pinch roller) with a chamois cloth soaked in cleaning fluid. (See Fig. 7-4.)

7-2-3. Cleaning of Drive System

1) Clean the drive system (timing belt, surface of reel tables) with a chamois cloth soaked in cleaning fluid.

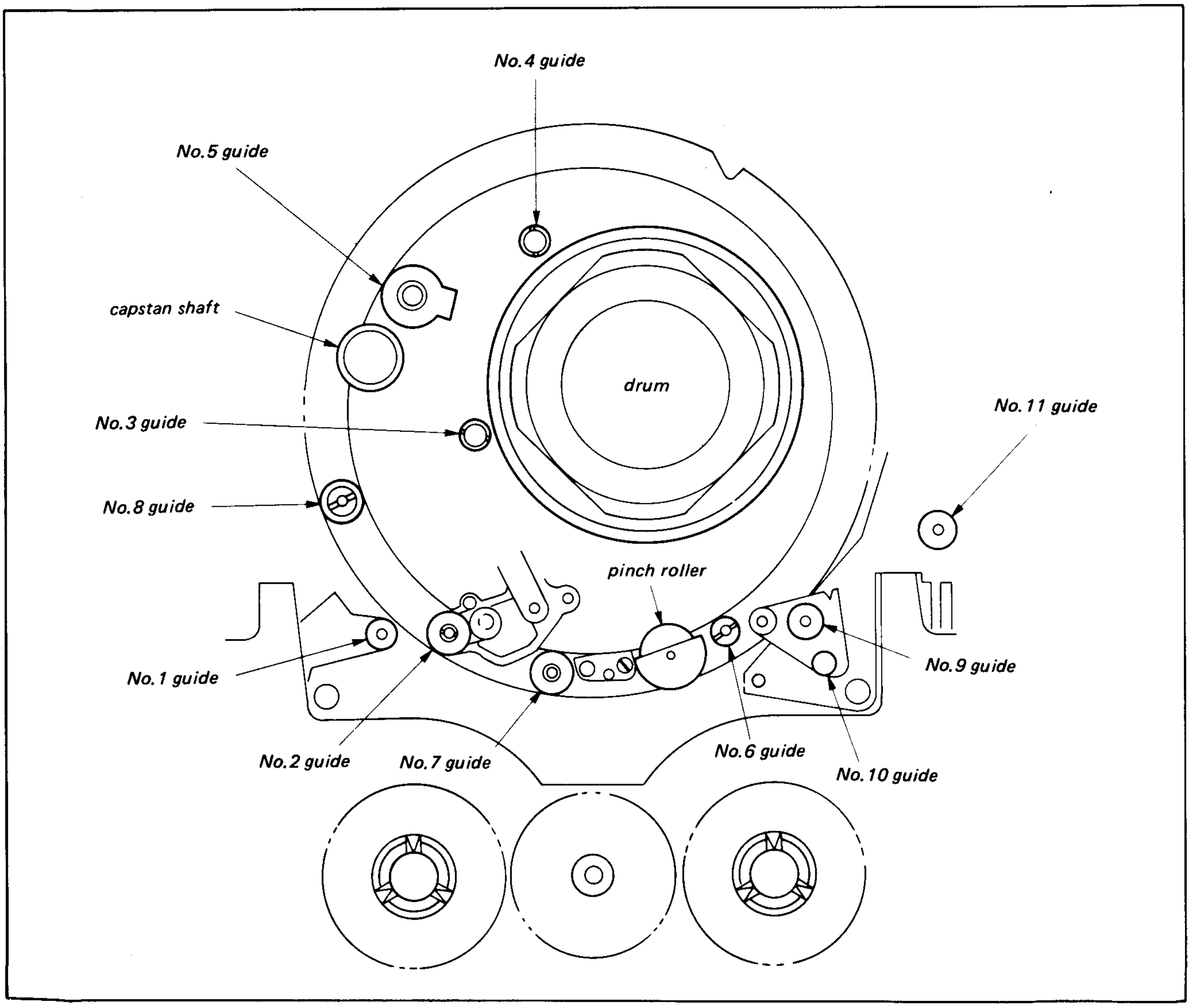

No.4 guide
No.5 guide
capstan shaft
drum
No.3 guide
No.11 guide
No.8 guide
pinch roller
No.9 guide
No.1 guide
No.2 guide
No.7 guide
No.6 guide
No.10 guide

Fig. 7-4

7-2-4. Periodic Check

Perform following according to number of hours of use.

Location		Hours of Use (H)										Notes
		500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	
Tape Path	Cleaning of tape path surface	○	○	○	○	○	○	○	○	○	○	Be careful of oil
	Cleaning and degaussing of rotary drum assembly	○	○	○	○	○	○	○	○	○	○	Be careful of oil
Drive System	L motor belt	○	○	○	○	○	○	○	★	○	○	3-686-546-01 Replace here, or every two years.
	Timing belt	○	○	○	○	○	○	○	○	○	○	3-686-646-11
	Plunger solenoid	—	—	—	○	—	—	—	○	—	—	1-454-377-11
	Capstan shaft bearing	—	◎	—	◎	—	◎	—	◎	—	◎	Be careful not to get oil on the tape path surface.
	Loading motor	—	☆	—	☆	—	☆	—	☆	—	☆	A-7090-030-B
	Control motor	—	☆	—	☆	—	☆	—	☆	—	☆	8-835-110-01
Performance Check	Abnormal noise	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	Back tension measurement	—	☆	—	☆	—	☆	—	☆	—	☆	
	Brake system	—	☆	—	☆	—	☆	—	☆	—	☆	
	FWD, RVS torque measurement	—	☆	—	☆	—	☆	—	☆	—	☆	

○Cleaning ◎Oiling ★Replacement ☆Checking

Note: When performing an overhaul, refer to the items above when replacing parts.

Note: Sony Oil

- Be sure to use Sony Oil. (There is a danger of trouble occurring if a different viscosity is used.)
  Sony Oil: Parts No. 7-611-088-61 (Mitsubishi Diamond Oil #400)
- Be sure to use clean oil when lubricating the shaft bearing, because there is a danger of wear and burning if dirty oil is used.
- One drop of oil means the amount which sticks to a 2 mm diameter rod, as shown in Fig. 7-5.

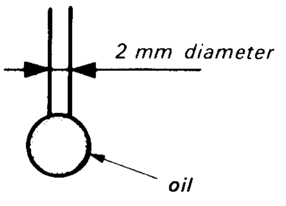


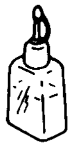
Fig. 7-5

7-2-5. Service Jig Table

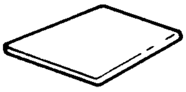
Ref. No.	Name	Part No.	Jig	Use, Notes
J-1	Cleaning fluid	Y-2031-001-1	—	
J-2	Chamois cloth	2-034-697-00	—	
J-3	Head degausser	Commercially sold	—	
J-4	Small adjustment mirror, spare mirror	J-6080-029-A J-6080-030-1	SL-5052	Tape path
J-5	Alignment tape (WR5-1N)	8-967-995-27		Tape path
J-6	Dial tension gauge	J-6080-827-A		torque measurement
J-7	Tension measurement reel	J-6080-831-A		with ϕ30 tape
J-8	Tension measurement reel	J-6080-832-A		with ϕ16 string
J-9	No. 10 gear phase jig	J-6080-823-A	GD-2047	
J-10	Rotary drum jig	(packed with the repair rotary upper drum)		
J-11	No. 6 guide lock screwdriver	J-6080-826-A		
J-12	FWD, RVS winding torque cassette	J-6080-824-A	GD-2089	
J-13	Mode selector	J-6080-825-A		for all models
J-14	Track shift & Monitor Jig	J-6080-843-A		Tape path

Other equipment: Oscilloscope
Analog tester (20 kΩ)

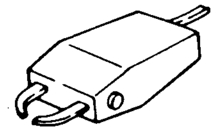
J-1



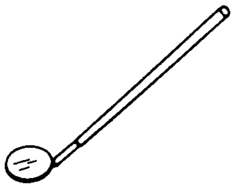
J-2



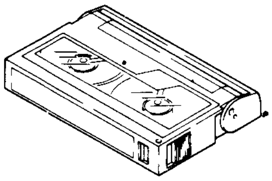
J-3



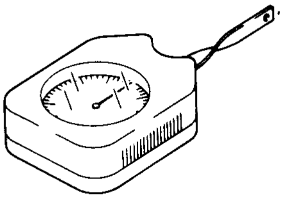
J-4



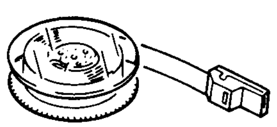
J-5



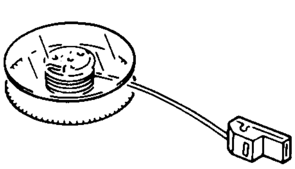
J-6



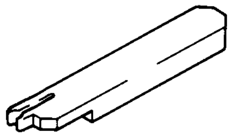
J-7



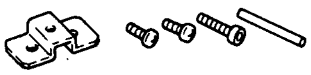
J-8



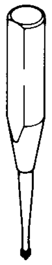
J-9



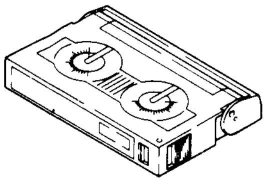
J-10 (Packed with repair use rotary upper drum)



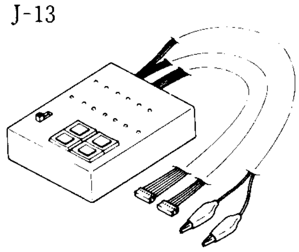
J-11



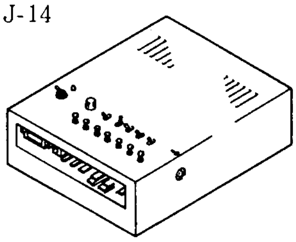
J-12



J-13



J-14



7-3. MECHANICAL CHECK, ADJUSTMENT AND REPLACEMENT

Note:
- Use the mode selector (Ref No. J-13) for this mechanical check, adjustment and replacement.
- The mode inside the ☐ is the mode set by pressing the mode selector button.

7-3-1. S Reel Table Assembly

<Removal>

1) Remove the cassette compartment assembly according to item Section 2, 2-4.
2) Set to FF/REW mode.
3) Remove screw ❶ and reel table stopper ❷.
4) Remove the REV brake assembly ❸.
5) Remove the S reel table assembly ❹. (Fig. 7-6.)

Note: Be sure to hold the upper reel hook when removing. (See Fig. 7-6.)

<Mounting>

1) Place a half drop of oil on the shaft ❺ upper surfance.
2) Move the S main brake assembly ❻ in the direction of arrow 🅐.
3) Mount the S reel table assembly ❹, being careful not to hit the tension regulator band assembly ❼.
4) Mount the REV brake assembly ❸.
5) Mount the reel table stopper ❷ and tighten with screw ❶. (See Fig. 7-6.)
6) Set to LOADING/UNLOADING mode.
7) Mount the cassette compartment assembly by following the procedure in item Section 2, 2-4. in reverse.

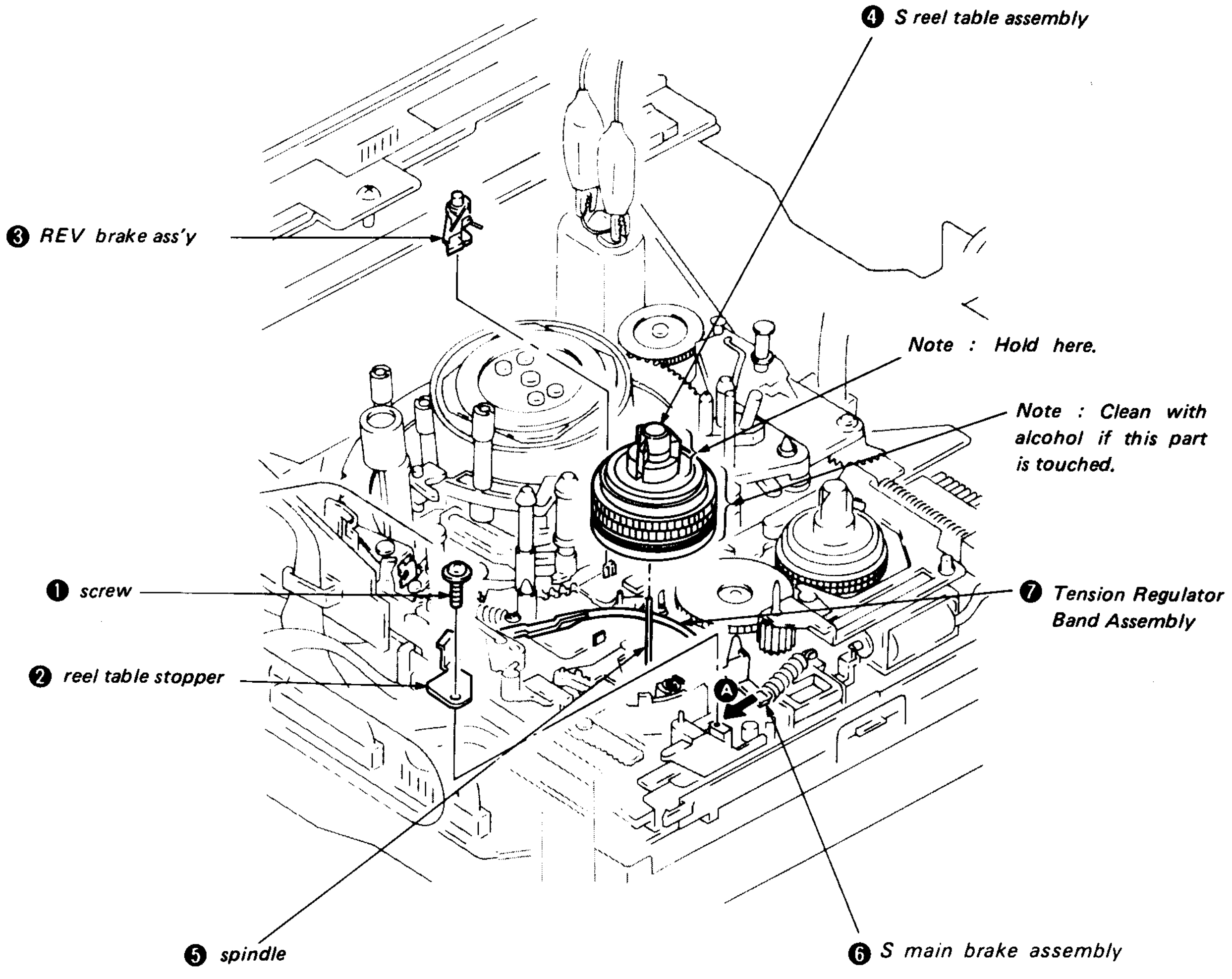

❹ S reel table assembly
❸ REV brake ass'y
Note : Hold here.
Note : Clean with alcohol if this part is touched.
❶ screw
❼ Tension Regulator Band Assembly
❷ reel table stopper
🅐
❺ spindle
❻ S main brake assembly

Fig. 7-6

7-3-2. T Reel Table Assembly

<Removal>

1) Remove the cassette compartment assembly according to item Section 2, 2-4.
2) Set to UNLOADING WAIT mode.
3) Place the spring ❷ on the T.S brake assembly ❶ on the hook on the lock slider assembly.
4) Remove the stopper washer ❸ and the T soft brake assembly ❶.
5) Set to EJECT mode.
6) Move drive gear (B) assembly ❹ in the direction of arrow Ⓐ.
7) Remove T reel table assembly ❺. (See Fig. 7-7.)

Note: Be sure to hold the upper reel hook when removing. (See Fig. 7-7.)

<Mounting>

1) Place a half drop of oil on the shaft ❻ upper surface.
2) Move the drive gear B assembly ❹ in the direction of arrow Ⓐ. (Check EJECT mode.)
3) Mount the T reel table assembly ❺.
4) Mount the T soft brake assembly ❶ and the stopper washer ❸.
5) Place the spring ❷ on the T.S brake assembly ❶ hook. (See Fig. 7-7.)
6) Set to LOADING TOP, LOADING/UNLOADING mode.
7) Mount the cassette compartment assembly by following the procedure in item Section 2, 2-4. in reverse.

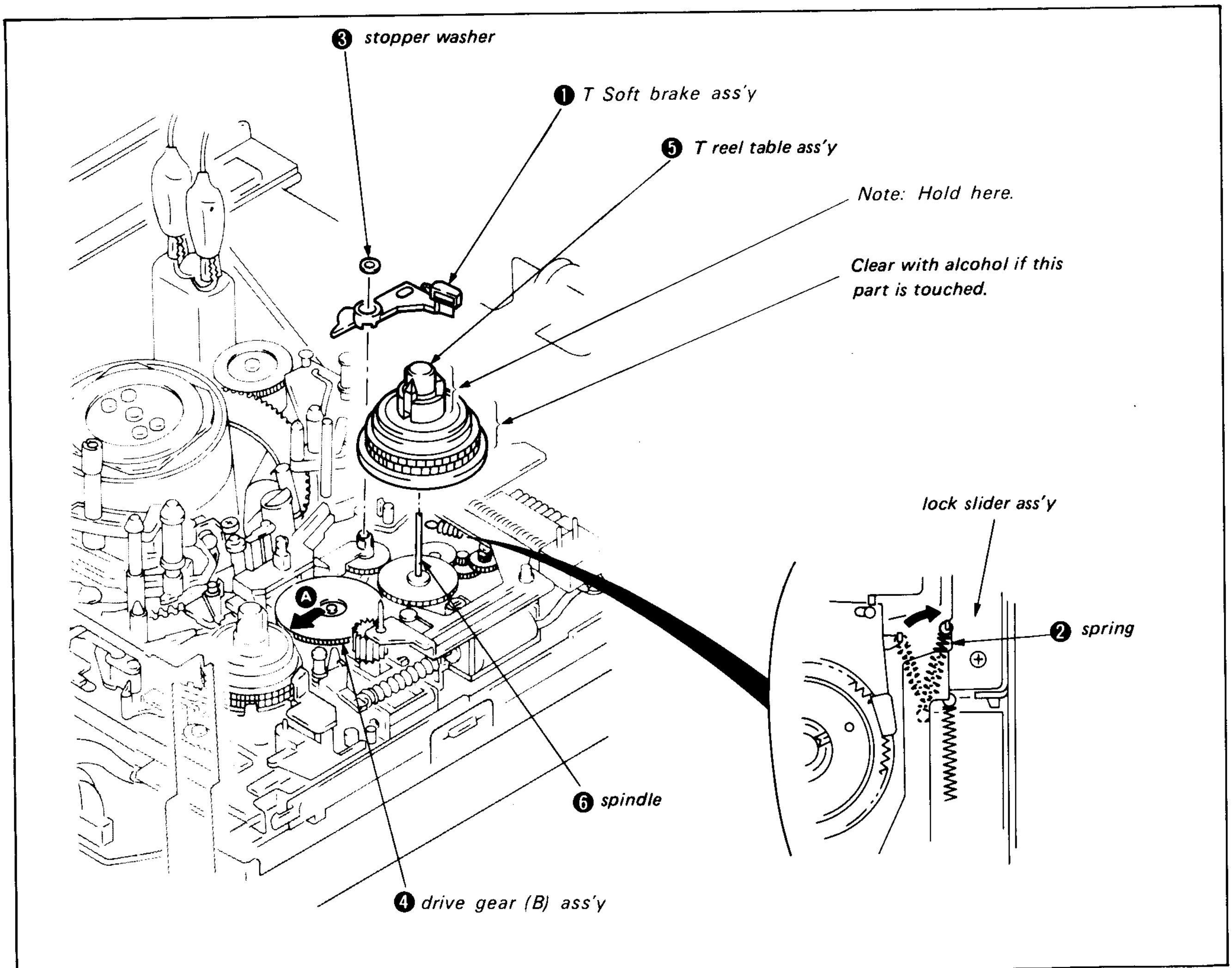

❸ stopper washer
❶ T Soft brake ass'y
❺ T reel table ass'y
Note: Hold here.
Clear with alcohol if this part is touched.
lock slider ass'y
❷ spring
Ⓐ
❻ spindle
❹ drive gear (B) ass'y

Fig. 7-7

7-3-3. Pinch Press Arm Assembly

<Removal>

1) Place the spring ❶ on the pinch press arm assembly ❷.
2) Remove the stopper washer ❸ and the pinch press arm assembly ❷. (See Fig. 7-8.)

<Mounting>

1) Place a half drop of oil on shaft ❹.
2) Mount the pinch press arm assembly ❷ and the stopper washer ❸.
3) Place the spring ❶ on the tension regulator spring assembly ❺. (See Fig. 7-8.)

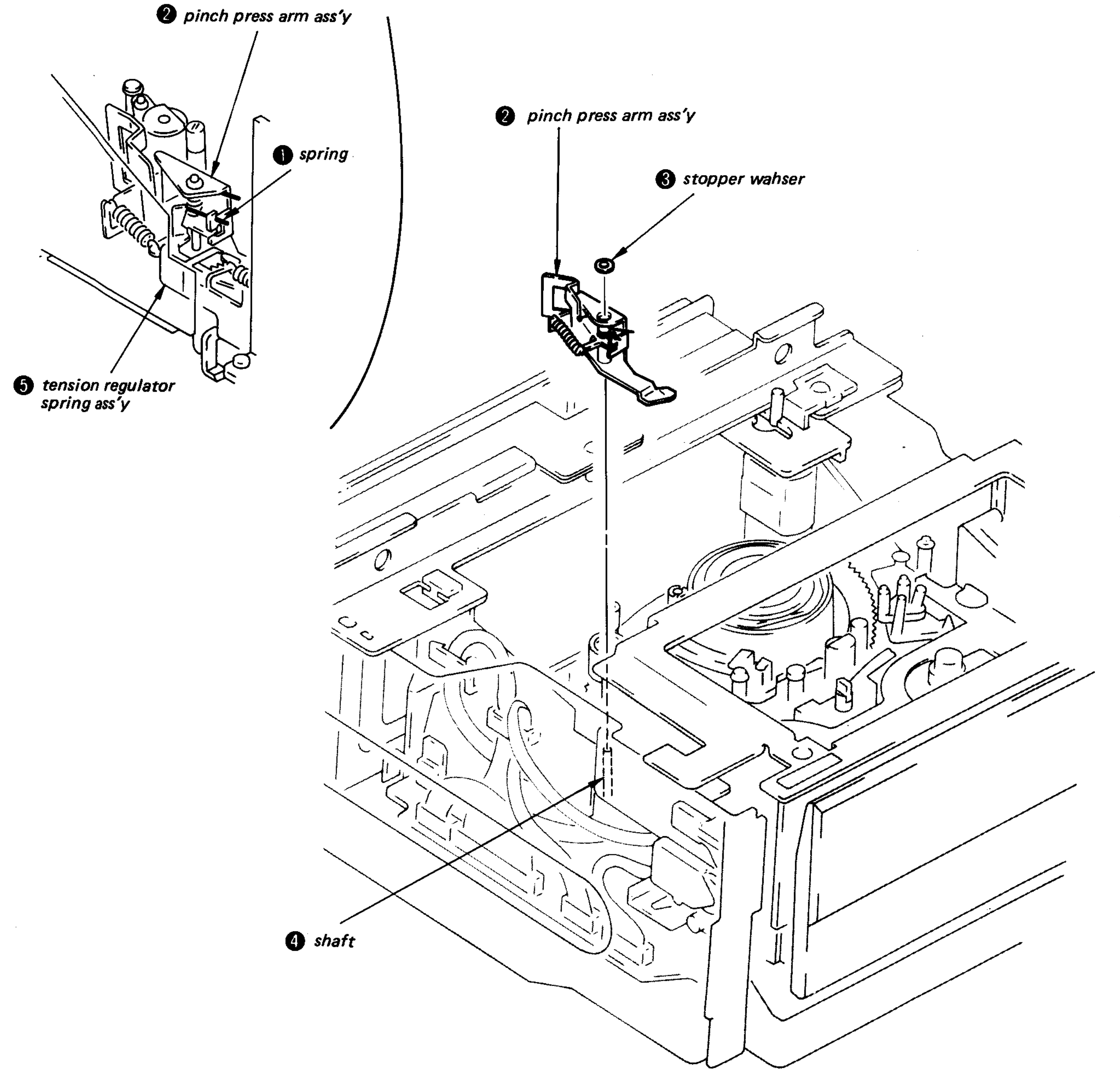

❷ pinch press arm ass'y
❶ spring
❺ tension regulator spring ass'y
❷ pinch press arm ass'y
❸ stopper wahser
❹ shaft

Fig. 7-8

7-3-4. Tension Regulator Arm Assembly

<Removal>

1) Remove the cassette compartment assembly according to item Section 2, 2-4.
2) Change the spring position as described in 7-3-3. <Removal> 1). (See Fig. 7-8.)
3) Remove spring ❶. (Note its position.)
4) Remove screw ❷ and the tension regulator spring assembly ❸.
5) Set to FF/REW mode.
6) Remove the tension regulator band assembly hook ❹.
7) Remove the tension regulator arm assembly ❺. (See Fig. 7-9.)

<Mounting>

1) Place a half drop of oil on the shaft ❻.
2) Mount the tension regulator arm assembly ❺, placing the tension regulator load arm assembly pin ❼ in the tension regulator arm assembly ❺ cam groove (on the back).
3) Mount the tension regulator band assembly hook ❹. (Do not touch the band or change its shape.)
4) Set to LOADING/UNLOADING mode.
5) Mount the tension regulator spring assembly ❸ and tighten with screw ❷.
6) Replace spring ❶ in its original position and lock the screws. (See Fig. 7-9.)
7) Position the spring according to item 7-3-3. <Mounting> 3). (See Fig. 7-8.)
8) Mount the cassette compartment assembly by following the procedure in item Section 2, 2-4. in reverse.

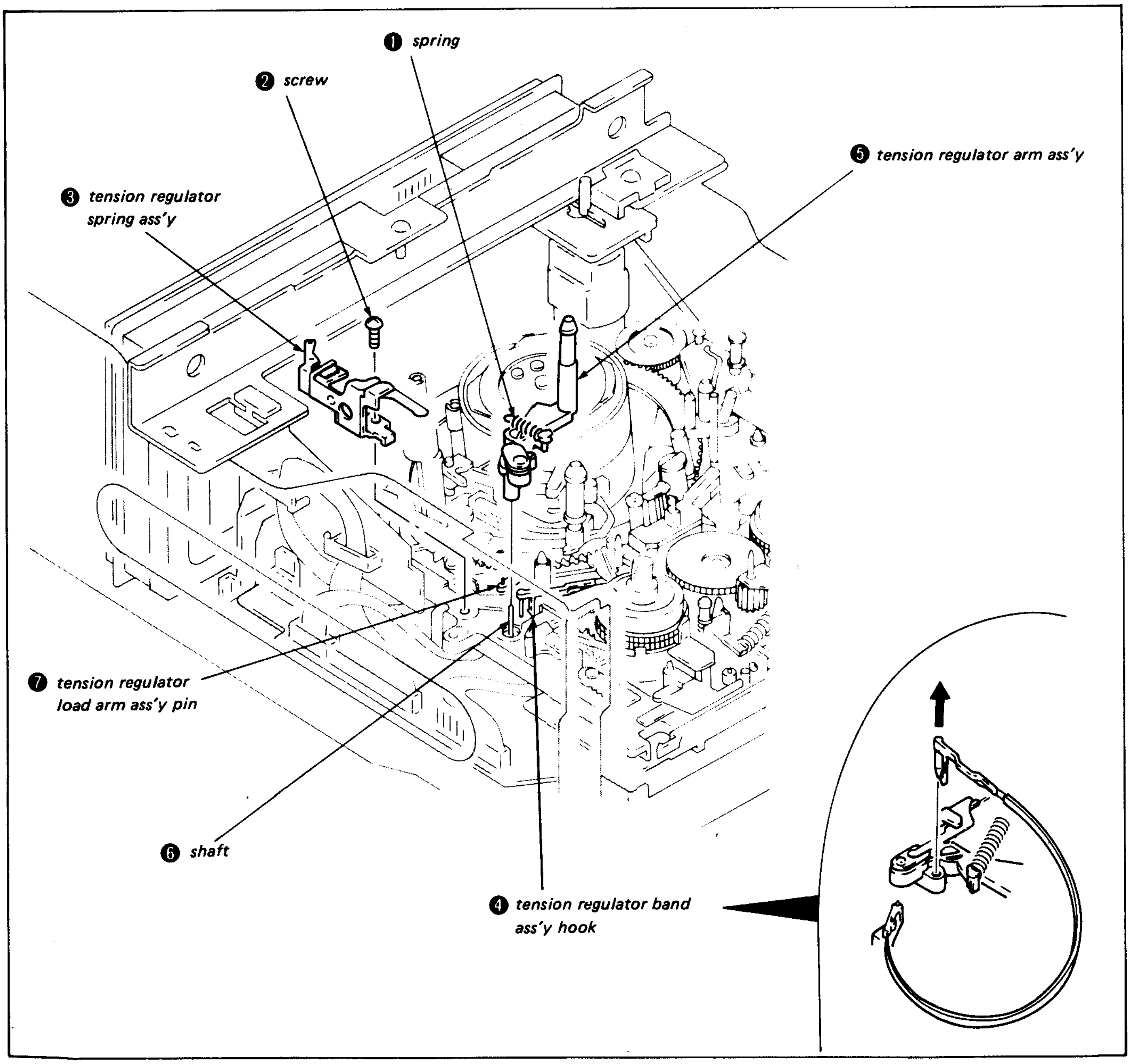

❶ spring
❷ screw
❺ tension regulator arm ass'y
❸ tension regulator spring ass'y
❼ tension regulator load arm ass'y pin
❻ shaft
❹ tension regulator band ass'y hook

Fig. 7-9

7-3-5. Tension Regulator Band Assembly

<Removal>

1) Remove the S reel table assembly according to item 7-3-1. <Removal>. (See Fig. 7-6.)
2) Remove the band arm hook ❶.
3) Remove hook ❷ and the tension regulator band assembly ❸. (See Fig. 7-10.)

<Mounting>

1) Mount the tension regulator band assembly ❸. (Do not touch the band or change its shape.)
2) Fit on the band arm hook ❶. (Fig. 7-10.)
3) Mount the S reel table assembly according to 7-3-1. <Mounting>. (See Fig. 7-6.)
4) Perform 7-3-21. FWD Back Tension Adjustment.

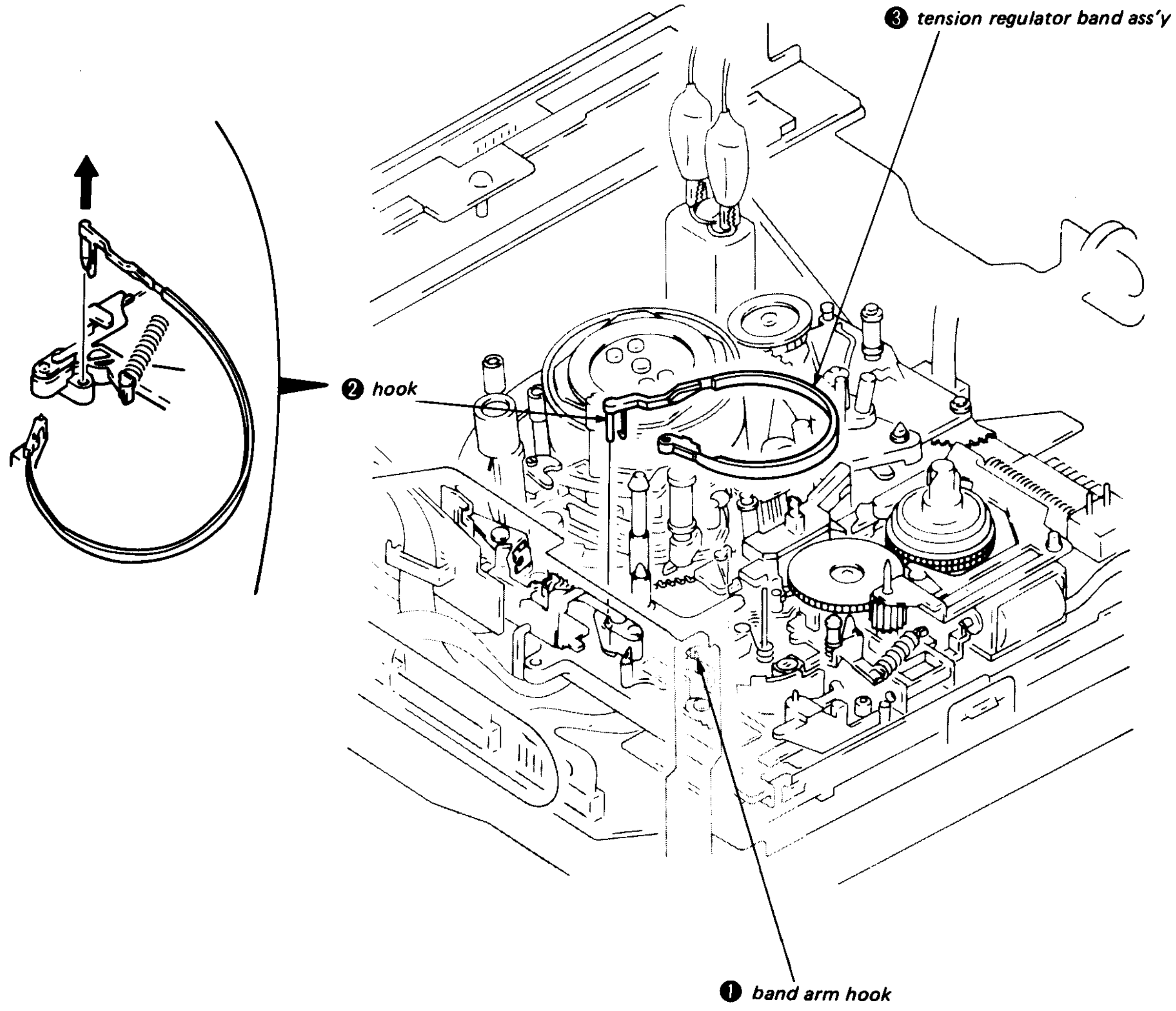

❸ tension regulator band ass'y
❷ hook
❶ band arm hook

Fig. 7-10

7-3-6. Loading Motor Assembly

<Removal>

1) Open the MD-14 board ❶ according to item Section 2, 2-9.
2) Remove connector ❷ from MD-14 board ❶ .
3) Remove L motor belt ❸ .
4) Remove cap cover ❹ .
5) Remove the two screws ❺ and the loading motor assembly ❻ . (See Fig. 7-11.)

<Mounting>

1) Mount the loading motor assembly ❻ and tighten the two screws ❺ .
2) Mount the cap cover ❹ .
3) Mount L motor belt ❸ . (See Fig. 7-11.)
4) Connect connector ❷ to MD-14 board ❶ . (See Fig. 7-11.)
5) Mount MD-14 board ❶ by following the procedure in item Section 2, 2-9. in reverse.

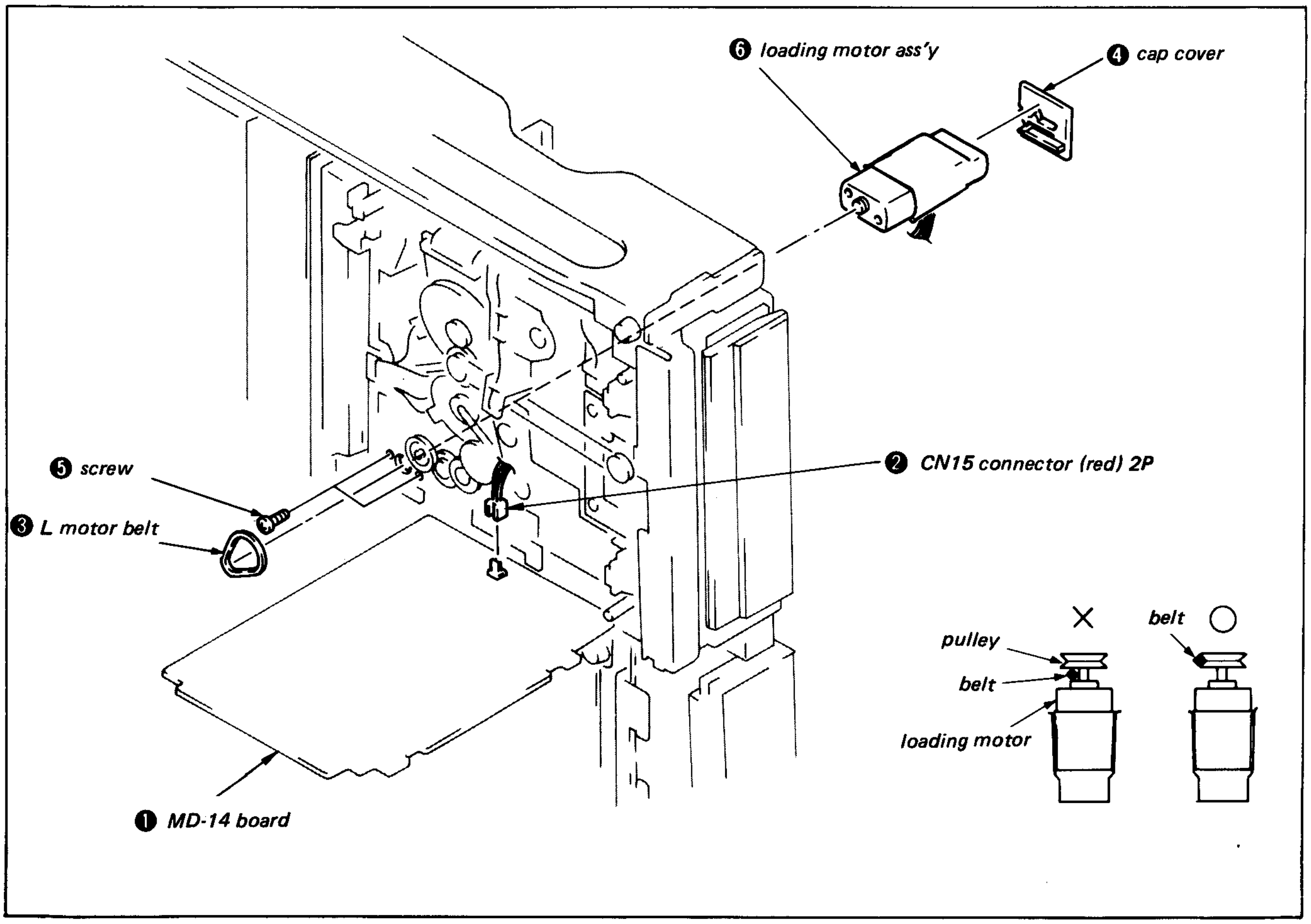

❻ loading motor ass'y
❹ cap cover
❺ screw
❸ L motor belt
❷ CN15 connector (red) 2P
❶ MD-14 board
×
belt ○
pulley
belt
loading motor

Fig. 7-11

7-3-7. Loading Ring Assembly

<Removal>

1) Remove the mechanism as described in item Section 2, 2-13.
2) Operate the mode selector, and move the guide base assembly ❶ until just before lock, and the entrance guide assembly ❷ until just before lock where the ring stopper ❸ screw is visible. (Do not move loading ring assembly ⓫ .)
3) Remove the stopper washer ❹ and remove No. 10 gear assembly ❺ .
4) Remove screw ❻ and the roller stopper ❼ and ring spacer ❽ .
5) Remove the two screws ❾ and the ring stopper ❸ and ring spacer ❿ .
6) Remove the loading ring assembly as shown by arrow Ⓐ . (Refer to Fig. 7-12.)

Note: Be careful that the loading ring assembly ⓫ does not touch the drum when it is removed.

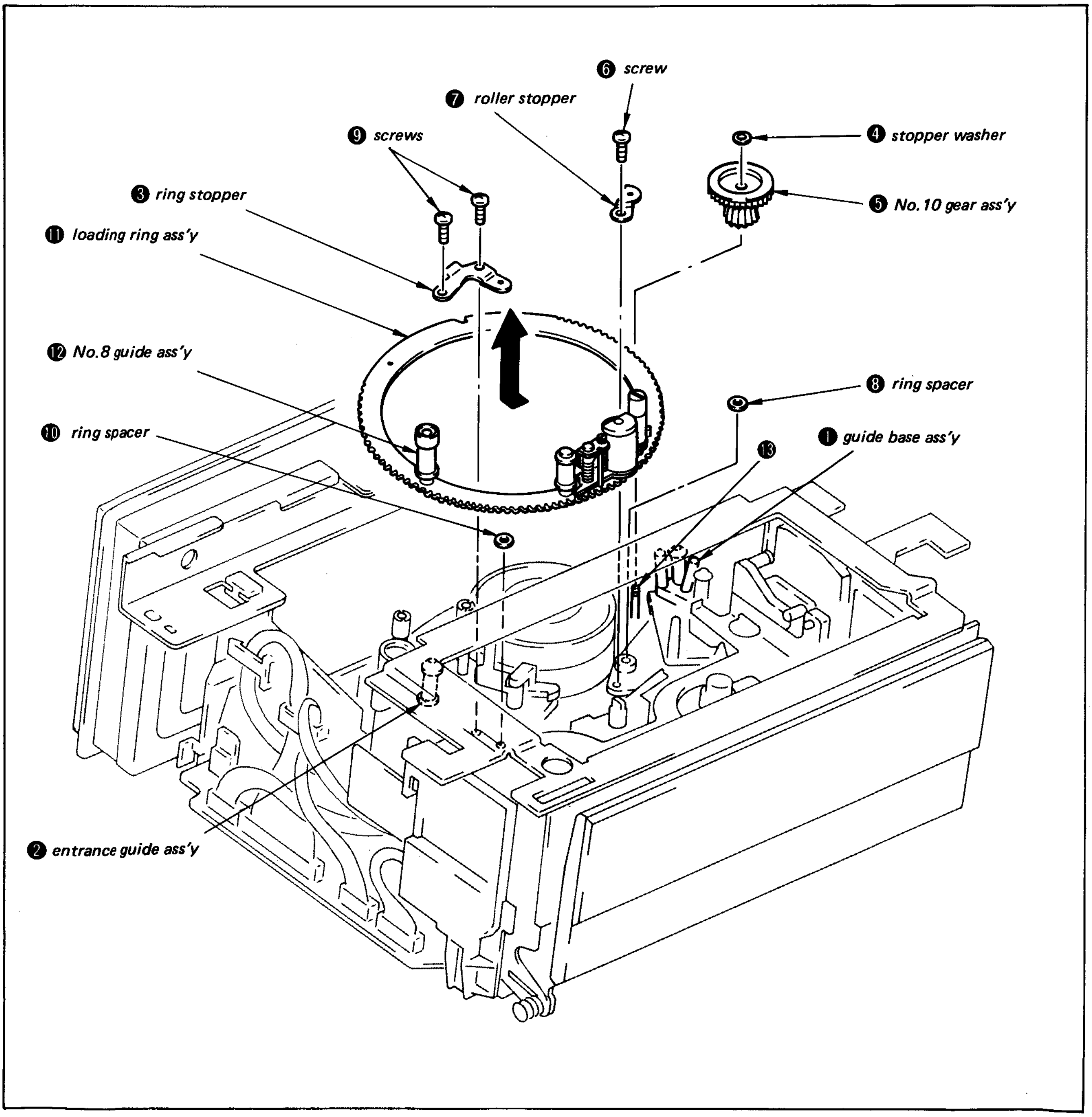

❻ screw
❼ roller stopper
❾ screws
❹ stopper washer
❸ ring stopper
❺ No. 10 gear ass'y
⓫ loading ring ass'y
⓬ No. 8 guide ass'y
❽ ring spacer
❿ ring spacer
⓭
❶ guide base ass'y
❷ entrance guide ass'y

Fig. 7-12

<Mounting>

1) Mount the loading ring assembly ⑪ so that it is in unthreaded state (pinch roller arm assembly is on the front panel side). (Check that is in the state in step 2) under Removal.)
2) Mount the ring spacer ⑩ and ring stopper ③ and tighten with the two screws ⑨. (No. 8 guide assembly ⑫ sould be closer to the front panel than the ring stopper ③.)
3) Mount the ring spacer ⑧ and roller stopper ⑦ and tighten with screw ⑥. (Check that the loading ring assembly matches the three ring spacers.)
4) Place a half drop of oil on the shaft ⑬. (See Fig. 7-12.)
5) Check that the protrusions on the drive changer assembly are in the indentations of the L-SW assembly and insert the No. 10 gear phase jig (Ref No. J-9). (See Fig. 7-13.)
6) Mount No. 10 gear assembly ⑤ and stopper washer ④ while pushing the No. 8 guide assembly ⑫ against the ring stopper ③.
7) Pull out the No. 10 gear phase jig.
8) Set to LOADING TOP mode. (See Fig. 7-12.)
9) Mount the mechanism by following the procedure in Section 2, 2-13. in reverse.

Note: Be sure to perform 7-4. Tape Path Adjustment after mounting.

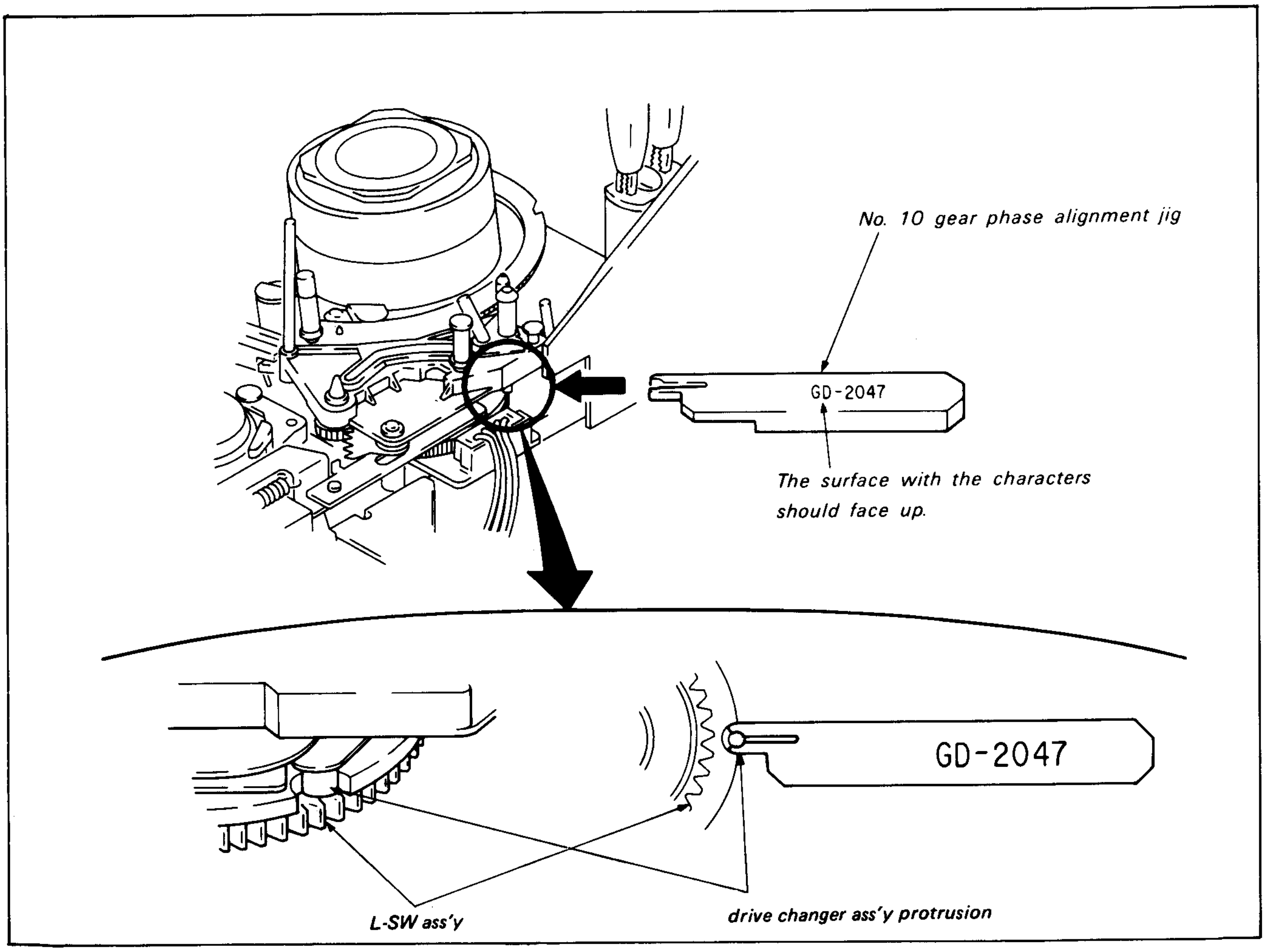

No. 10 gear phase alignment jig
GD-2047
The surface with the characters should face up.
GD-2047
L-SW ass'y
drive changer ass'y protrusion

Fig. 7-13

7-3-8. Pinch Roller Assembly

<Removal>

1) Remove the loading ring assembly as described in 7-3-7. <Removal>. (See Fig. 7-12.)
2) Remove stopper washer ❶. (See Fig. 7-14.)
3) Change the position of the spring ❸ on No. 7 guide assembly ❷. (See Fig. 7-15.)
4) Rotate pinch roller arm assembly ❹ in the direction of arrow Ⓐ . (See Fig. 7-16.)
5) Remove pinch roller arm assembly ❹ in the direction of arrow Ⓑ . (See Fig. 7-17.)
6) Remove spring ❸. (See Fig. 7-18.)

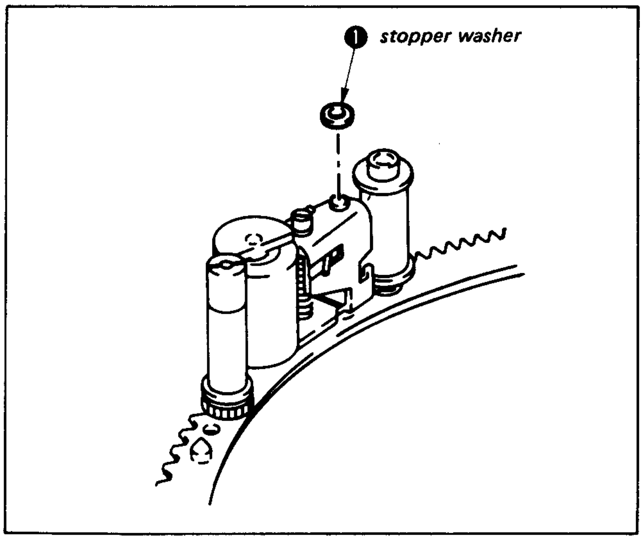

❶ stopper washer

Fig. 7-14

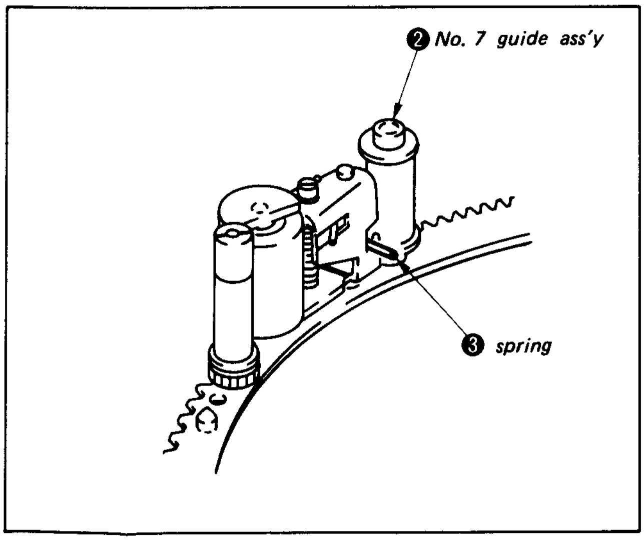

❷ No. 7 guide ass'y
❸ spring

Fig. 7-15

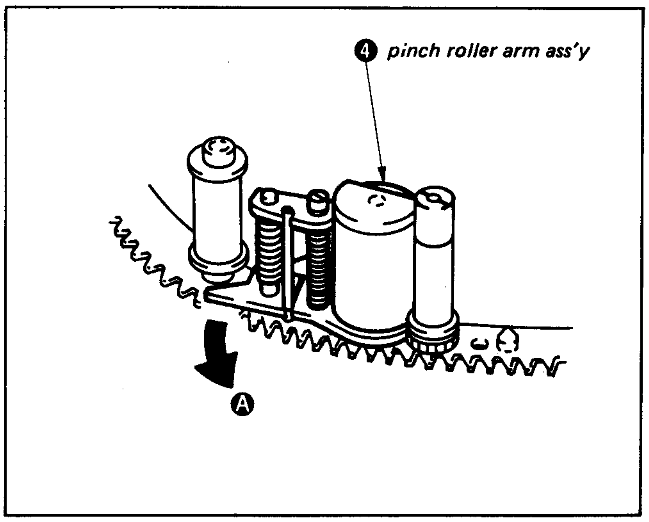

❹ pinch roller arm ass'y
Ⓐ

Fig. 7-16

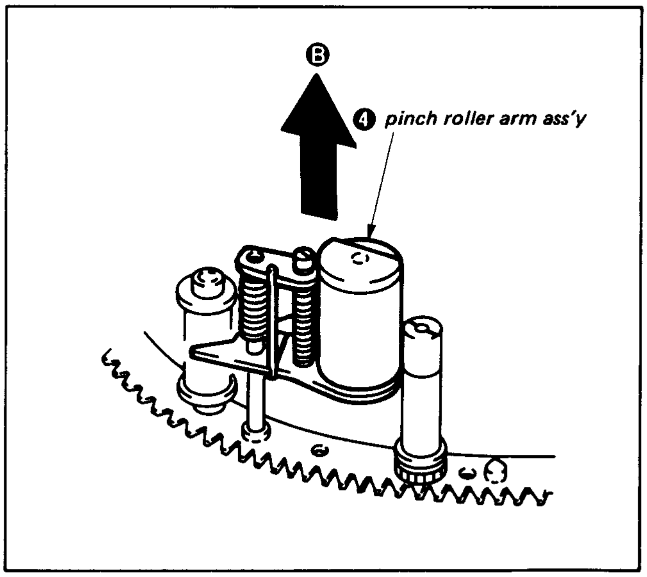

Ⓑ
❹ pinch roller arm ass'y

Fig. 7-17

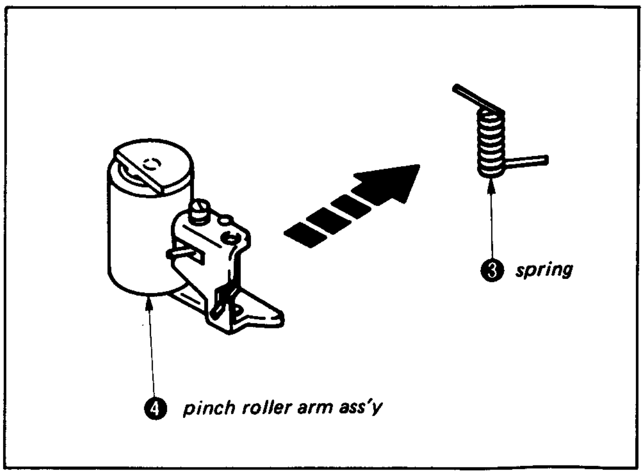

❸ spring
❹ pinch roller arm ass'y

Fig. 7-18

<Mounting>

1) Position spring ❸ . (See Fig. 7-19.)
2) Insert the end of a paper clip ❺ or other thin rod inside the pinch roller arm assembly hole ❻ . (See Fig. 7-20, 21.)

   assembly ❹ . (See Fig. 7-22, 23.)
4) Place the spring on No. 7 guide assembly ❷ . At this time, check that the spring is hooked on section 🅒 . (See Fig. 7-24.)
5) Mount the stopper washer ❶ . (See Fig. 7-25.)
6) Mount the loading ring assembly according to 7-3-7. <Mounting>. (See Fig. 7-12.)

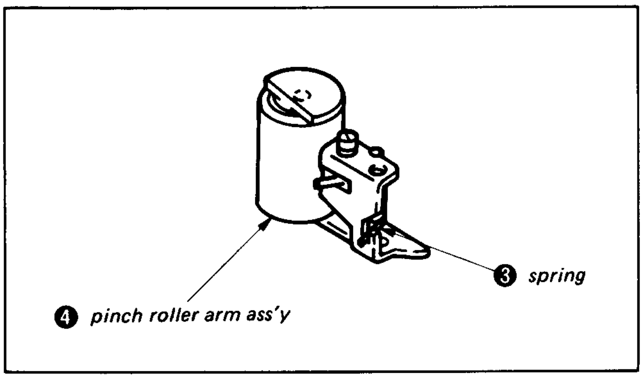

❸ spring
❹ pinch roller arm ass'y

Fig. 7-19

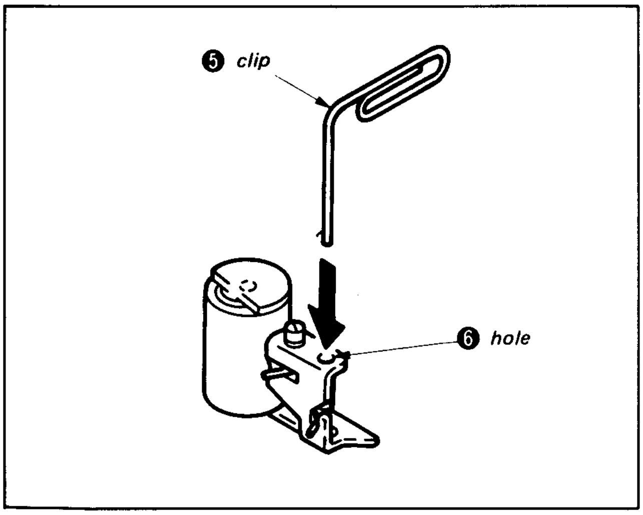

❺ clip
❻ hole

Fig. 7-20

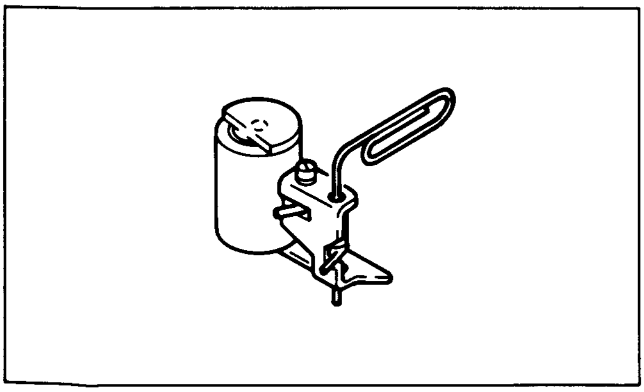


Fig. 7-21

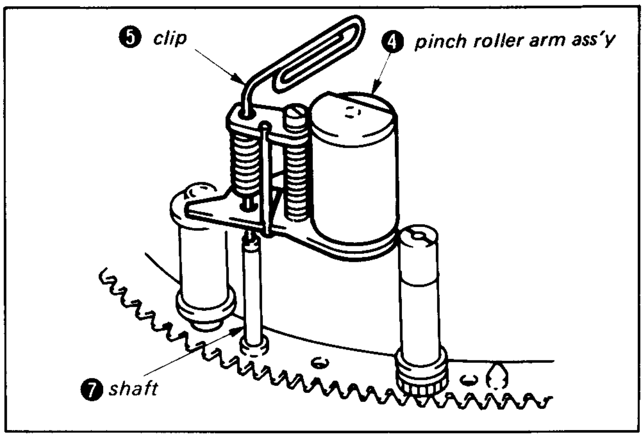

❺ clip
❹ pinch roller arm ass'y
❼ shaft

Fig. 7-22

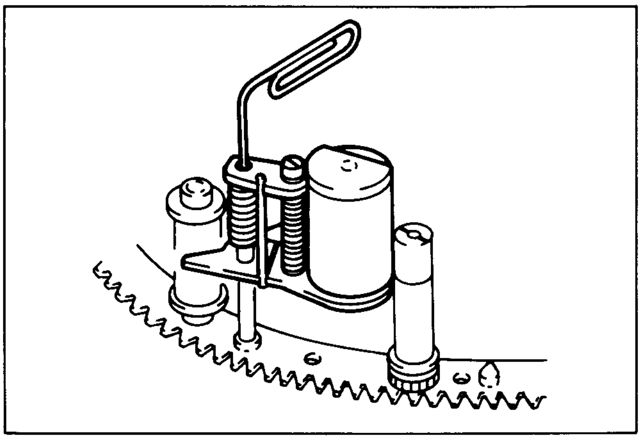


Fig. 7-23

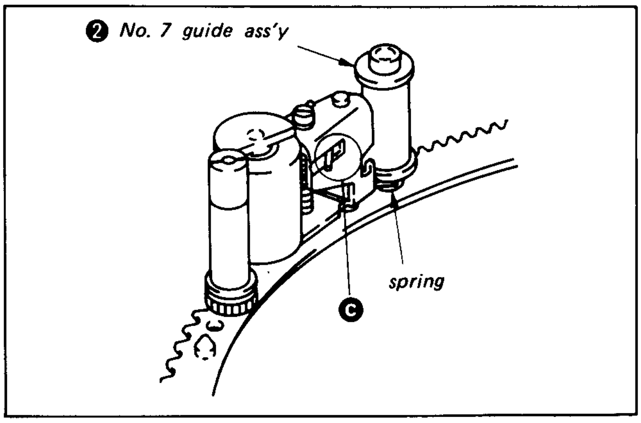

❷ No. 7 guide ass'y
spring
🅒

Fig. 7-24

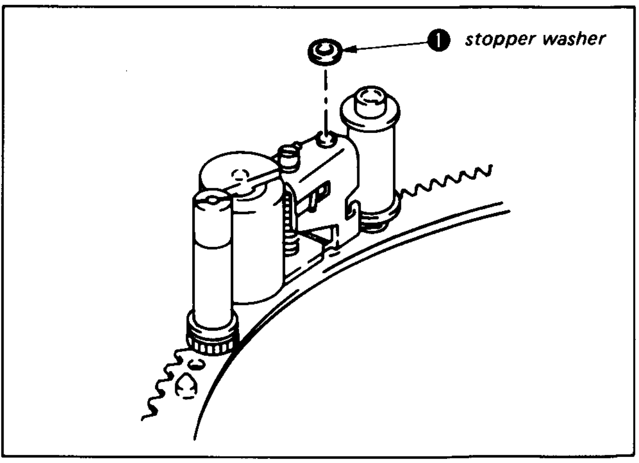

❶ stopper washer

Fig. 7-25

7-3-9. Slant Guide Assembly

<Removal>

1) Remove the cassette compartment assembly according to item Section 2, 2-4.
2) Remove the loading ring assembly according to 7-3-7. <Removal>. (See Fig. 7-12.)
3) Remove screw ❶ and E ring ❷ .
4) Remove the slant guide assembly ❸ . (Refer to Fig. 7-26.)

<Mounting>

1) Operate the mode selector, and line up the right edge of the L slider assembly and the right edge of the lock slider assembly. (See Fig. 7-27.)
2) Set the slant guide assembly guide base assembly in unthreaded state (guide base assembly is on front panel side) and mount. (See Fig. 7-28.)

Note: At this time, confirm the engagement position of the slant guide drive gear and L slider assembly gear. (Fig. 7-32.)

3) Mount the E ring ❷ and tighten screw ❶ . (Fig. 7-26.)
4) Put in the state in 7-3-7. <Removal> 1).
5) Mount the loading ring assembly according to 7-3-7. <Mounting>. (Fig. 7-12.)
6) Mount the cassette compartment assembly by following the procedure in Section 2, 2-4. in reverse.

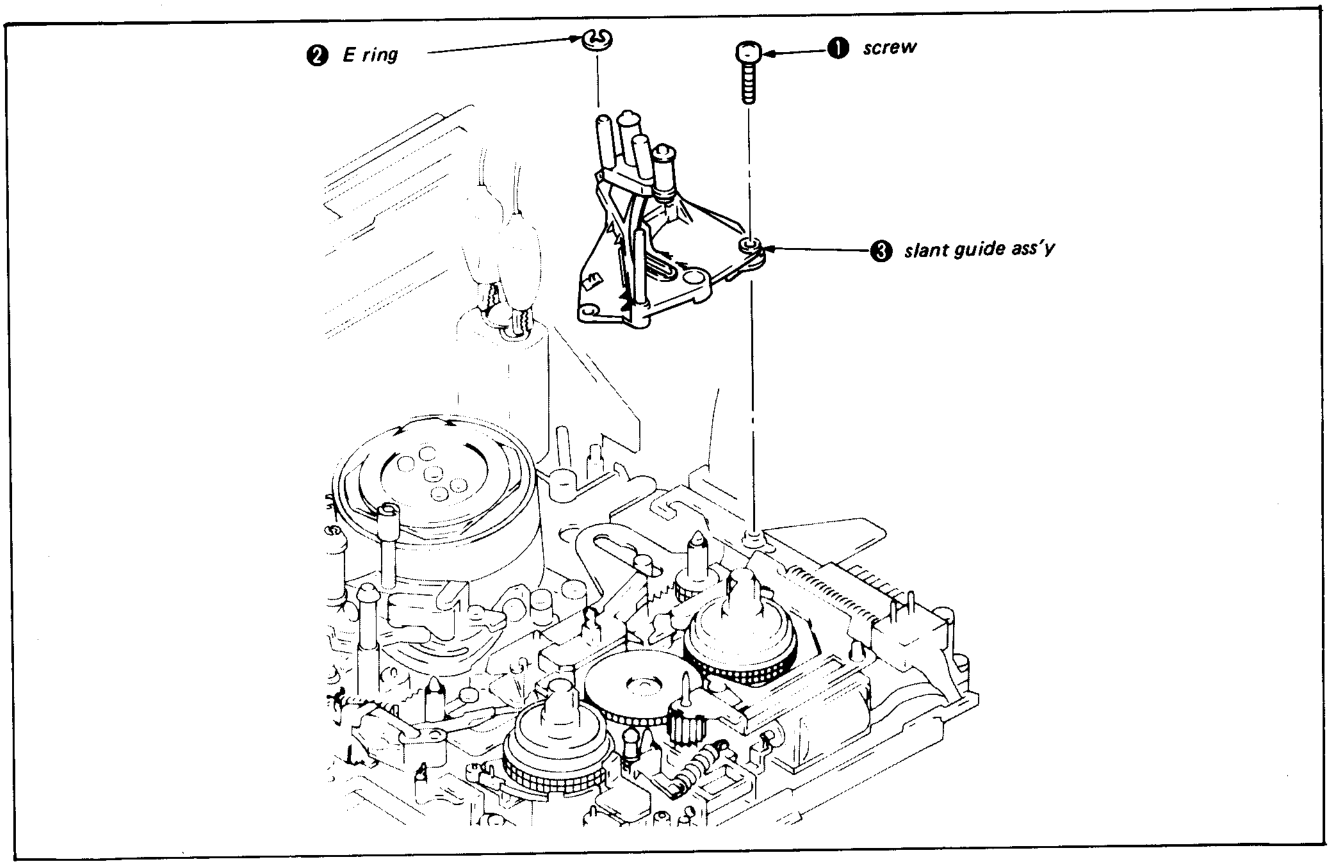

❷ E ring
❶ screw
❸ slant guide ass'y

Fig. 7-26

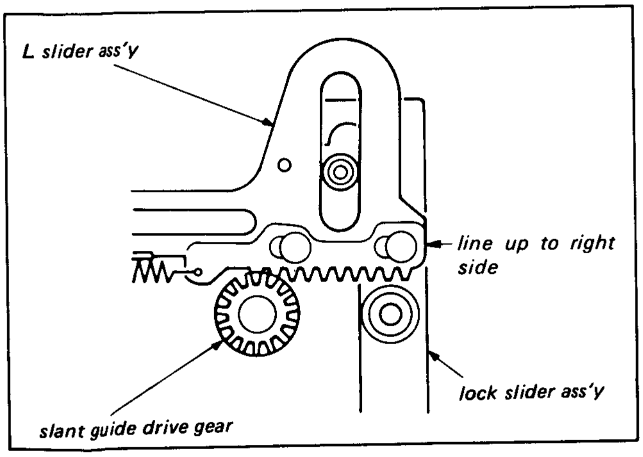

L slider ass'y
line up to right side
lock slider ass'y
slant guide drive gear

Fig. 7-27

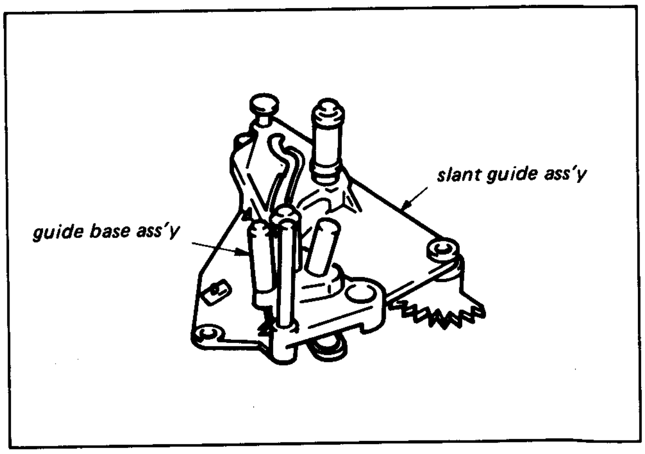

slant guide ass'y
guide base ass'y

Fig. 7-28

7-3-10. Entrance Guide Assembly (No. 2 Guide Assembly)

<Removal>

1) Turn the rotary upper drum counterclockwise and separate the head portion from the entrance guide assembly ❶ .
2) Remove the two screws ❷ .
3) Remove No. 3 guide nut ❸ , and remove guide flange ❹ , guide ❺ and coil spring ❻ .
4) Remove the entrance guide assembly ❶ . (Fig. 7-29.)

<Mounting>

1) Engage the entrance guide assembly and L slider assembly so that the part without teeth Ⓐ on the bottom of the entrance guide assembly and the part without teeth Ⓑ on the L slider assembly match.
2) Mount the coil spring ❻ , guide ❺ and guide flange ❹ in that order, then temporarily tighten the guide nut ❸ .
3) Tighten the two screws ❷ . (Fig. 7-29.)

Note: Be sure to perform 7-4. Tape Path Adjustment after mounting.

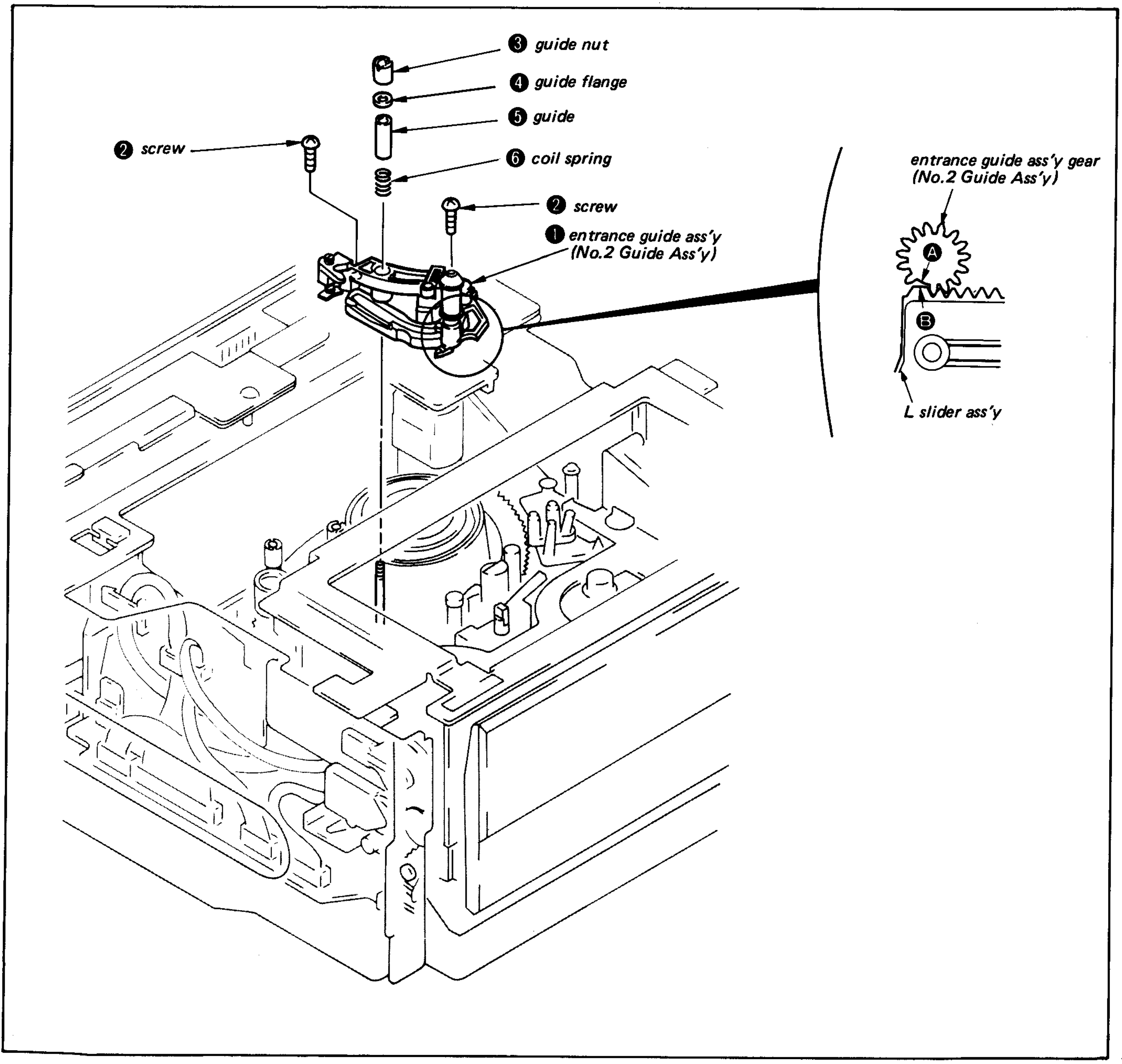

❸ guide nut
❹ guide flange
❺ guide
❷ screw
❻ coil spring
❷ screw
❶ entrance guide ass'y (No.2 Guide Ass'y)
entrance guide ass'y gear (No.2 Guide Ass'y)
Ⓐ
Ⓑ
L slider ass'y

Fig. 7-29

7-3-11. L Slider Assembly

<Removal>

1) Remove the slant guide assembly according to 7-3-9. <Removal>.
2) Remove the entrance guide assembly according to 7-3-10. <Removal>.
3) Set to DRUM START mode.
4) Remove slant guide drive gear ❶.
5) Remove the tension regulator load arm assembly ❷ pin from the cam groove of the tension regulator arm assembly. (See Fig. 7-3-4. Tension Regulator Arm Assembly)
6) Remove the two stopper washers ❸.
7) Remove the L slider assembly ❺ while pushing the RL arm assembly protrusion ❹ in the direction of arrow Ⓐ.
8) Remove the stopper washer ❻ and the tension regulator load arm assembly ❷. (Fig. 7-30.)

<Mounting>

1) Lubricate the portions indicated in Fig. 7-31.
2) Mount the tension regulator load arm assembly ❷ and the stopper washer ❻. (Fig. 7-30.)
3) Mount the L slider assembly 5 while pushing the RL arm assembly protrusion ❹ in the direction of arrow Ⓐ.
4) Put the tension regulator load arm assembly ❷ pin into the M slider groove. (See 7-3-15, M slider)
5) Mount the two stopper washers ❸.
6) Refer to 7-3-4. <Mounting> 2), and place the tension regulator load arm assembly ❷ pin in the tension regualtor arm assembly cam groove.
7) Operate the mode selector, and match up the right edge of the L slider assembly and the right edge of the lock slider assembly. (Refer to 7-3-9. <Mounting> 1).)
8) Engage the slant guide drive gear so that the notch is 1 tooth away from the L slider assembly left side tooth. (Fig. 7-32.)
9) Mount the entrance guide assembly according to 7-3-10. <Mounting>.
10) Mount the slant guide assembly according to 7-3-9. <Mounting>.

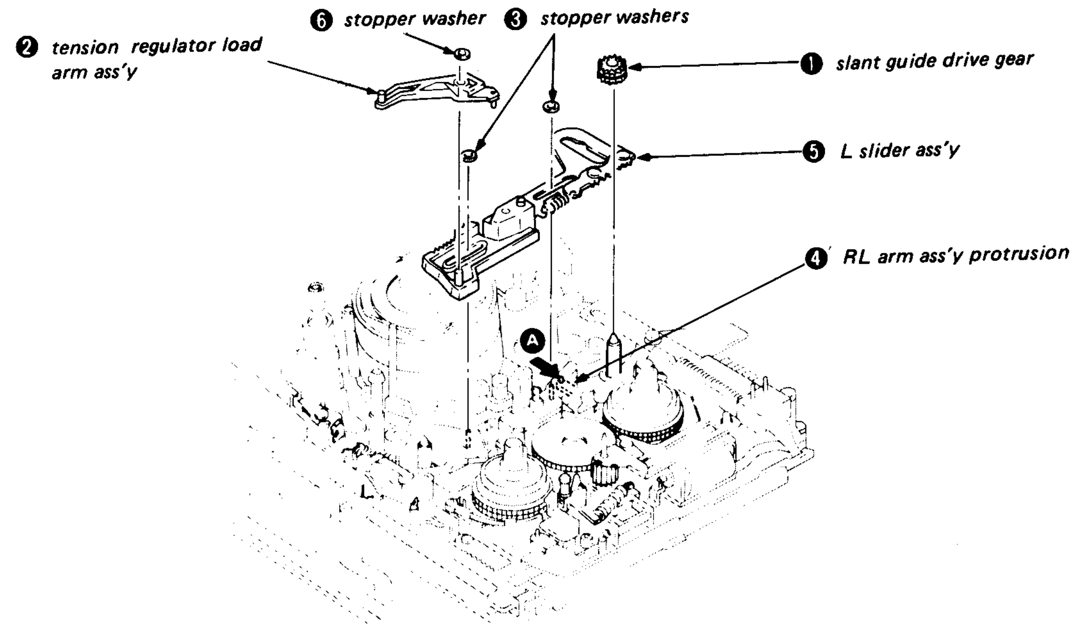

❻ stopper washer
❸ stopper washers
❷ tension regulator load arm ass'y
❶ slant guide drive gear
❺ L slider ass'y
❹ RL arm ass'y protrusion
Ⓐ

Fig. 7-30

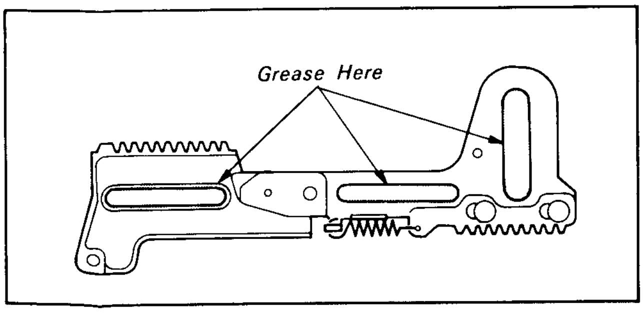

Grease Here

Fig. 7-31

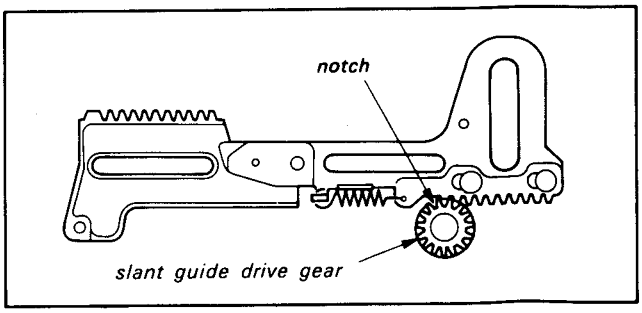

notch
slant guide drive gear

Fig. 7-32

7-3-12. L-SW Assembly

<Removal>

1) Remove the L slider assembly according to 7-3-11. <Removal>.
2) Remove lock slider holder ❶.
3) Remove screw ❷ and lock slider A ❸.
4) Remove stopper washer ❹ and coil spring ❺.
5) Remove drive changer assembly ❻.
6) Remove connector ❼.
7) Remove the two screws ❽ and the L-SW assembly ❾. (Refer to Fig. 7-33.)

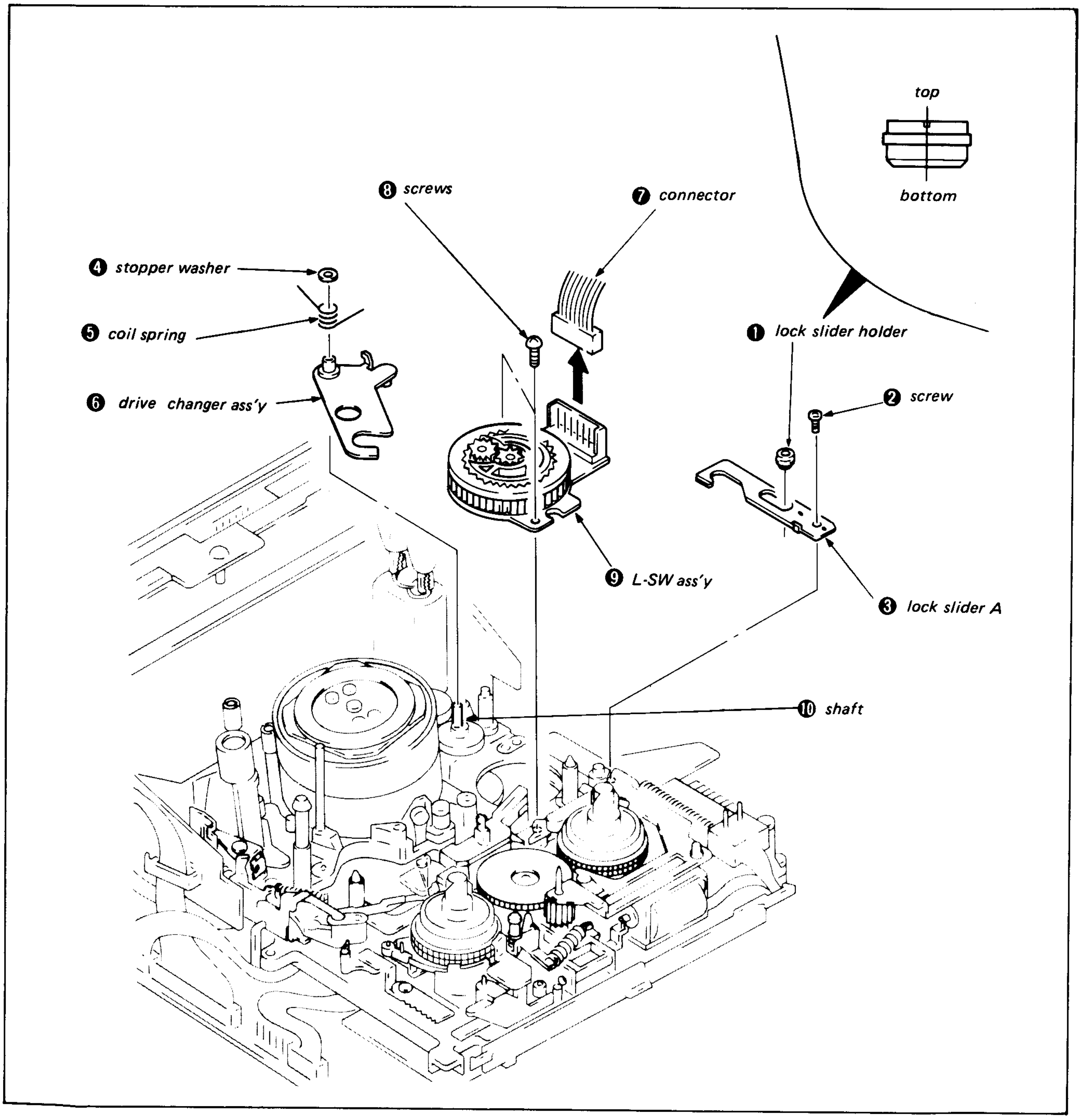

top
bottom
❽ screws
❼ connector
❹ stopper washer
❺ coil spring
❻ drive changer ass'y
❶ lock slider holder
❷ screw
❾ L-SW ass'y
❸ lock slider A
❿ shaft

Fig. 7-33

<Mounting>

1) Place a half drop of oil on the L-SW assembly ❾ shaft (planetary gear).
2) Mount L-SW assembly ❾ and tighten with the two screws ❽.
3) Connect connector ❼.
4) Operate the mode selector and check that the L-SW assembly ❾ rotates.
5) Place a half drop of oil on shaft ❿.
6) Grease the drive change assembly ❻ as shown in Fig. 7-34.
7) Mount the drive changer assembly ❻. (See Fig. 7-33.)
8) Mount the coil spring ❺ and the stopper washer ❹.
9) Operate the mode selector and check that the L-SW assembly ❾ rotates.
10) Mount lock slider A ❸ and tighten screw ❷.
11) Mount lock slider holder ❶. (Fig. 7-33.)
12) Operate the mode selector and set to the position in Fig. 7-35.
13) Mount the L slider assembly according to 7-3-11. <Mounting>.

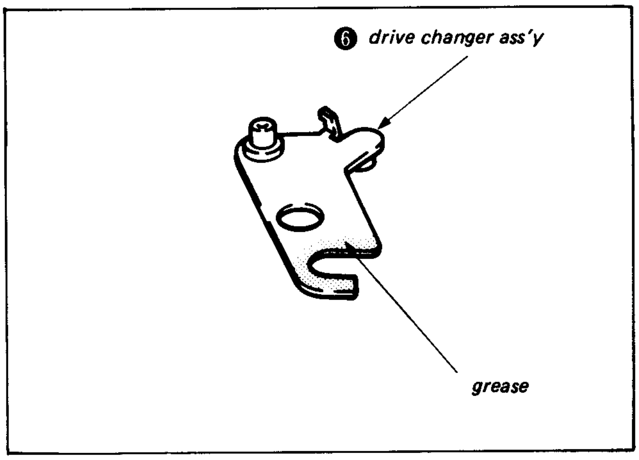
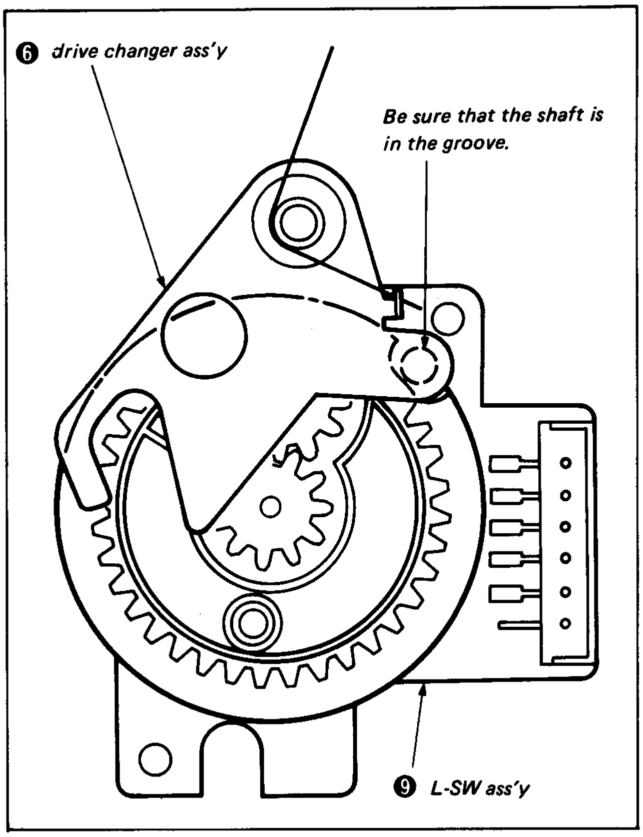


Fig. 7-34



Be sure that the shaft is in the groove.

Fig. 7-35

7-3-13. Plunger Solenoid

<Removal>

1) Open the MD-14 board according to Section 2, 2-9. and remove connector CN13 (yellow) 3P.
2) Remove the cassette compartment assembly according to Section 2, 2-4.
3) Remove spring ❶.
4) Remove the two stopper washers ❷.
5) Remove screw ❸ and the lock slider B assembly ❹.
6) Remove the two screws ❺ and the plunger solenoid ❻. (At this time, be careful not to scratch the T reel assembly with the screwdriver, and do not touch it.) (Fig. 7-36.)

<Mounting>

1) Insert the plunger solenoid pin ❼ into the P arm hole ❽ and mount with the two screws ❺. (Again, be careful not to scratch or touch the T reel assembly.)
2) Mount lock slider B assembly ❹ and tighten screw ❸.
3) Mount the two stopper washers ❷.
4) Hook on the spring ❶. (Fig. 7-36.)
5) Mount the cassette compartment assembly by following the procedure in Section 2, 2-4. in reverse.
6) Connect the CN13 connector (yellow) to the MD-14 board.
7) Mount the MD-14 board by following the procedure in Section 2, 2-9. in reverse.

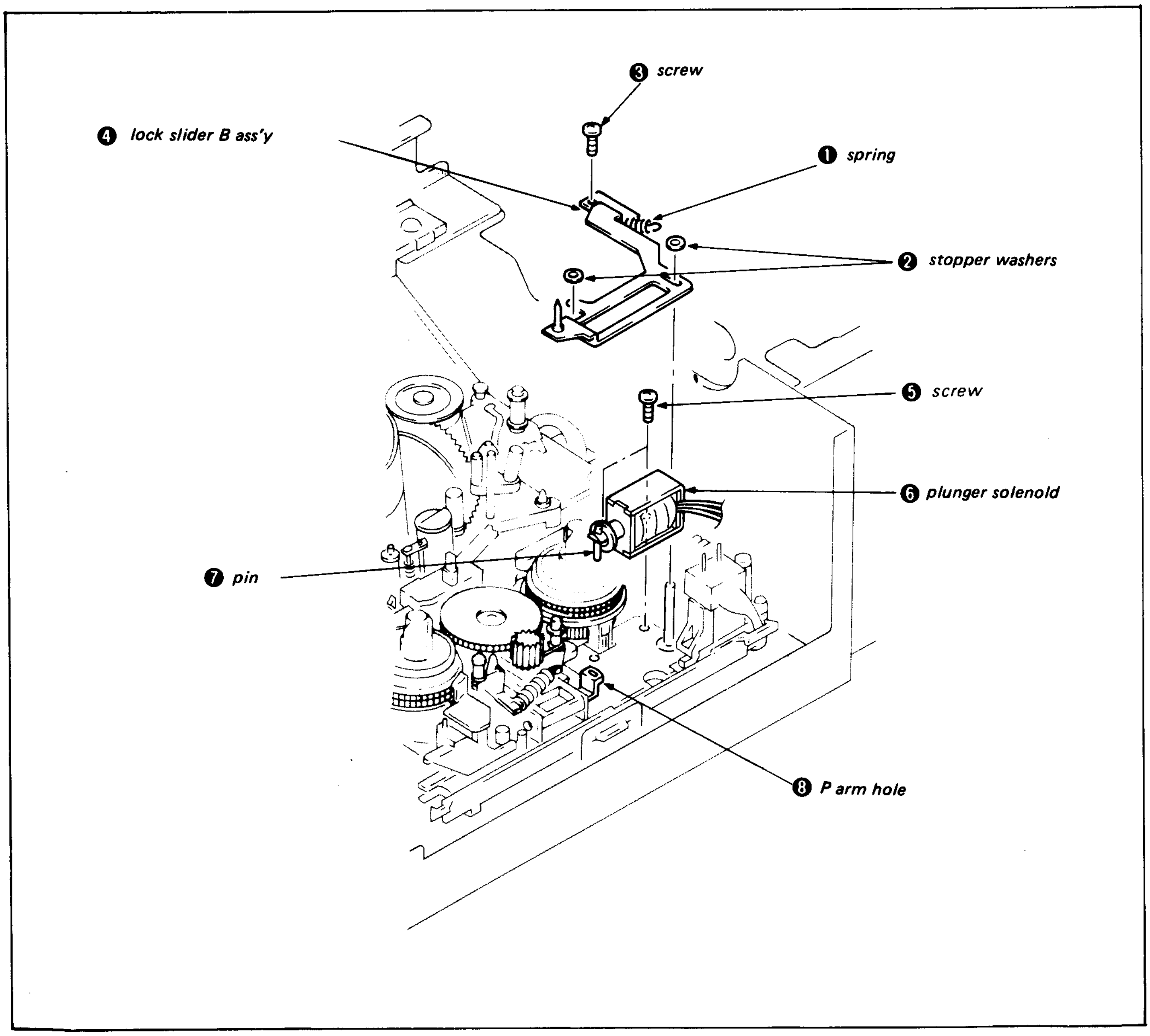


Fig. 7-36

7-3-14. M-SW Assembly

<Removal>

1) Open the MD-14 board according to Section 2, 2-9., and remove CN25 connector (yellow) 2P and lengthen the wiring which comes outside.
2) Remove the T reel assembly according to 7-3-2. (Fig. 7-7.)
3) Remove stopper washer ❶ and the drive gear B assembly ❷.
4) Remove the LD-1 board. (See Fig. 7-37.)
5) Remove lock slider B assembly according to 7-3-13. <Removal> 3), 4) and 5).
6) Remove spring ❹ and B release arm assembly ❺.
7) Check EJECT mode.
8) Remove stopper washer ❻ and the mode output gear ❼.
9) Remove screw ❽ and the push switch ❾.
10) Remove connector ❿.
11) Remove the three screws ⓫, the control motor cover assembly ⓬ and the M-SW assembly ⓭.
12) Remove solder Ⓐ and remove the DC motor ⓮. (Refer to Fig. 7-38.)

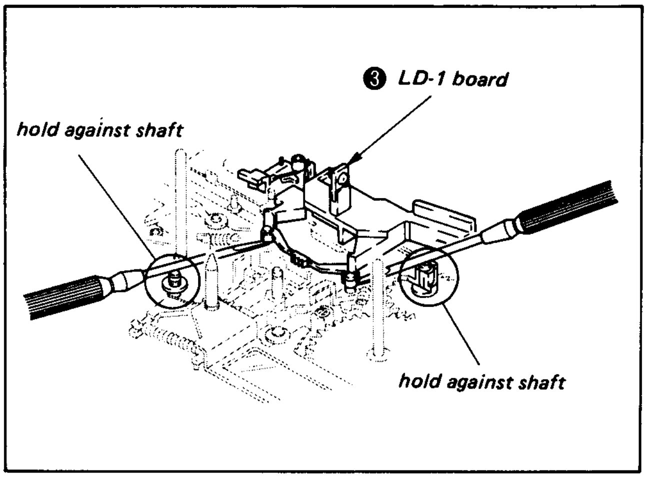

❸ LD-1 board
hold against shaft
hold against shaft

Fig. 7-37

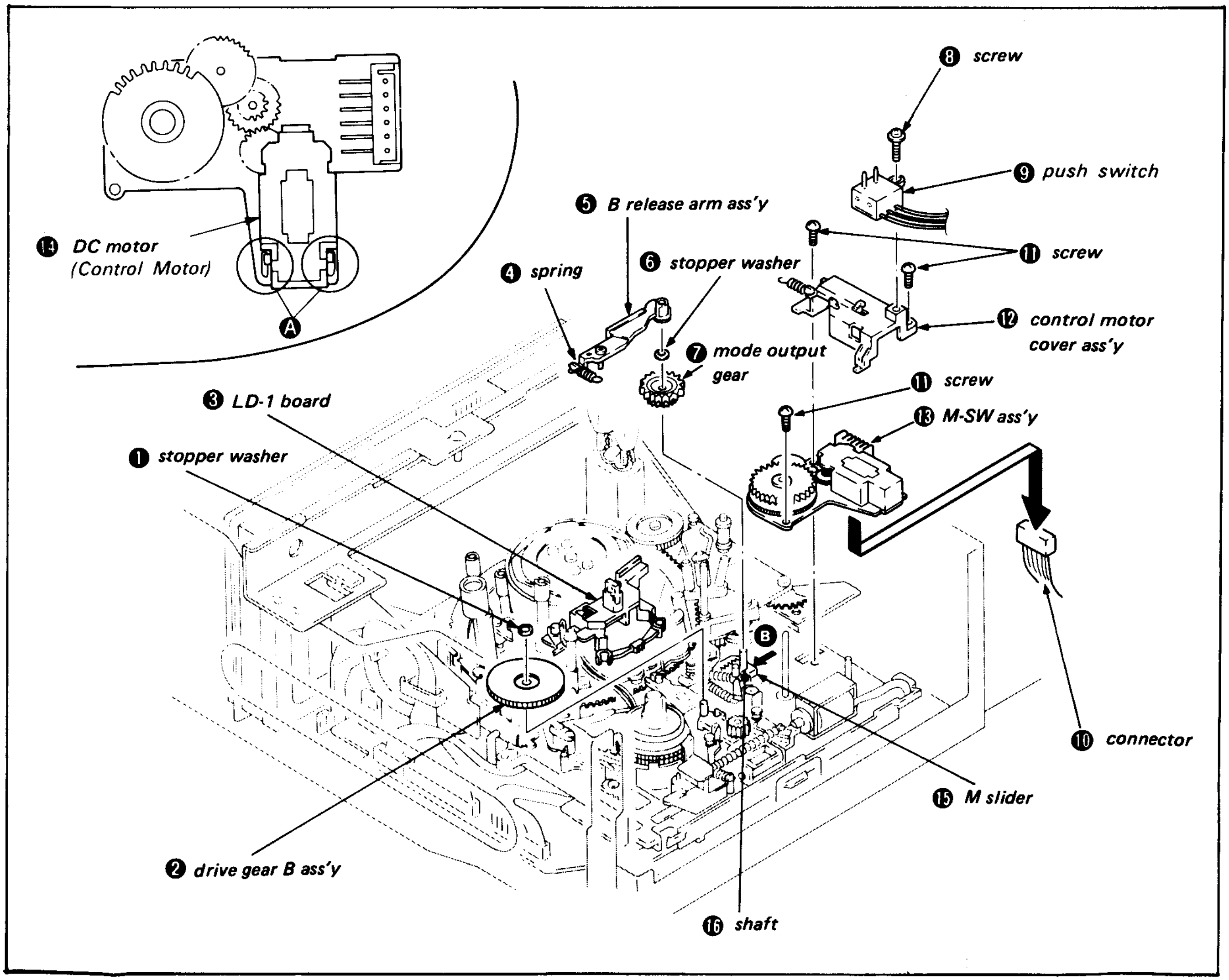

⓮ DC motor (Control Motor)
Ⓐ
❽ screw
❾ push switch
❺ B release arm ass'y
⓫ screw
❻ stopper washer
❹ spring
⓬ control motor cover ass'y
❼ mode output gear
⓫ screw
❸ LD-1 board
⓭ M-SW ass'y
❶ stopper washer
Ⓑ
❿ connector
⓯ M slider
❷ drive gear B ass'y
⓰ shaft

Fig. 7-38

<Mounting>

1) Solder the DC motor (Control Motor) ⓮.
2) Mount the M-SW assembly ⓭ and the control motor cover assembly ⓬, and tighten the three screws ⓫.
3) Connect connector ❿.
4) Mount push switch ❾ and tighten screw ❽.
5) Check EJECT mode.
6) Check that M slider ⓯ is moved fully in the direction of arrow Ⓑ.
7) Place a half drop of oil on shaft ⓰. (Fig. 7-38.)
8) Mount the mode output gear ❼ so that the positioning holes are lined up. (Fig. 7-39.)
9) Mount stopper washer ❻.
10) Set to LOADING/UNLOADING mode.
11) Mount B release arm assembly ❺ and spring ❹.
12) Mount the lock slider B assembly according to 7-3-13. <Mounting> 2), 3) and 4).
13) Mount the LD-1 board ❸.
14) Mount drive gear B assembly ❷ and stopper washer ❶. (Fig. 7-38.)
15) Mount the T reel assembly according to 7-3-2. <Mounting>.
16) Connect the 2P CN25 connector (yellow) to MD-14 board.
17) Mount the MD-14 board by following the procedure in Section 2, 2-9. in reverse.

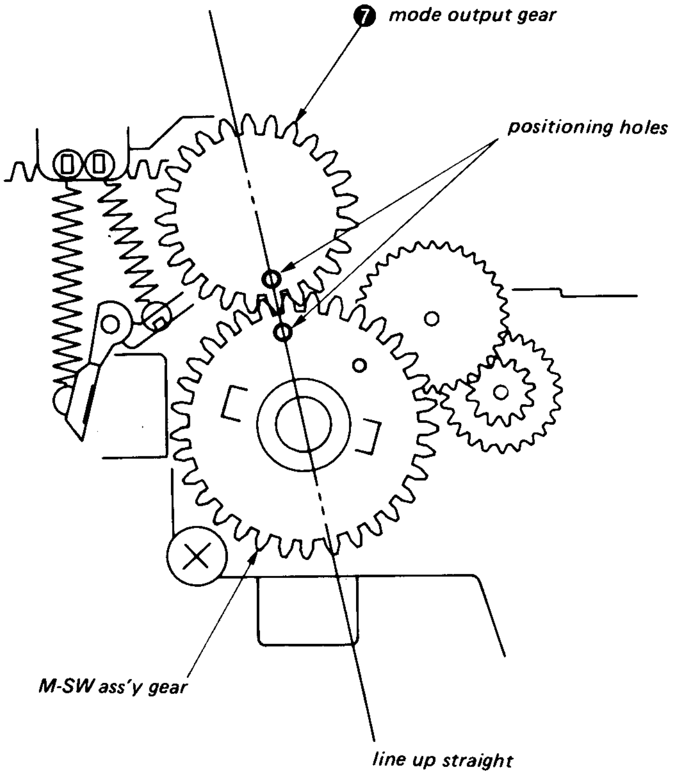


Fig. 7-39

7-3-15. M Slider

<Removal>

1) Open the MD-14 board according to Section 2, 2-9., and remove timing belt 1 .
2) Remove the pinch press arm assembly according to 7-3-3. <Removal>. (Fig. 7-8.)
3) Remove the tension regulator arm assembly according to 7-3-4. <Removal>. (Fig. 7-9.)
4) Remove the tension regulator band assembly according to 7-3-5. <Removal>. (Fig. 7-10.)
5) Remove the loading ring assembly according to 7-3-7. <Removal>. (Fig. 7-12.)
6) Perform 7-3-14., steps 1) – 6).
7) Remove the tension regulator load arm assembly according to 7-3-11. <Removal>. (Fig. 7-30.)
8) Remove spring ❷.
9) Remove the two stopper washers ❸ and remove the S main brake assembly ❹ and T brake assembly ❺.
10) Set to LOADING TOP , LOADING/UNLOADING mode.
11) Remove the two screws ❻ and the drive assembly ❼.
12) Perform 7-3-14. <Removal> steps 7) and 8).
13) Remove the two springs ❽.
14) Remove REW brake assembly ❾.
15) Remove stopper washer ❿ and B release slider ⓫.
16) Remove RVS arm ⓬ .
17) Remove stopper washer ⓭ and ring lock spring ⓮ and RL arm assembly ⓯ .
18) Move the M slider ⓰ to the right (leave about 5 mm at the left.)
19) Remove the E ring ⓱ and the pinch press lever assembly ⓲ .
20) Remove spring ⓳ and the hard brake S ⓴ .
21) Remove stopper washer ㉑ , push the mode arm ㉒ in the direction of arrow Ⓐ , and lift up the left side of the M slider ⓰ to remove. (See Fig. 7-40.)

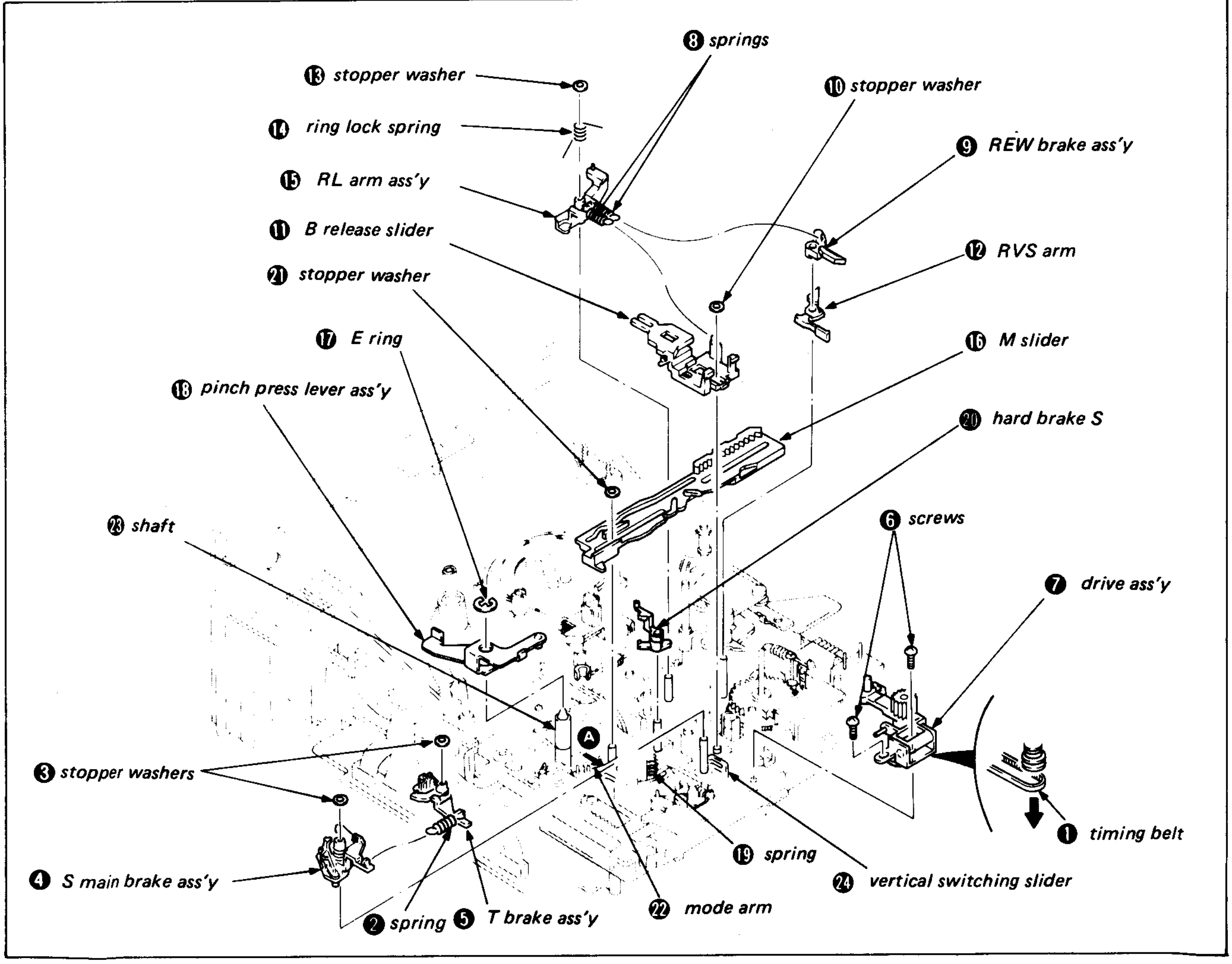

❽ springs
⓭ stopper washer
❿ stopper washer
⓮ ring lock spring
❾ REW brake ass'y
⓯ RL arm ass'y
⓫ B release slider
⓬ RVS arm
㉑ stopper washer
⓱ E ring
⓰ M slider
⓲ pinch press lever ass'y
⓴ hard brake S
㉓ shaft
❻ screws
❼ drive ass'y
Ⓐ
❸ stopper washers
❶ timing belt
⓳ spring
❹ S main brake ass'y
㉔ vertical switching slider
❷ spring
❺ T brake ass'y
㉒ mode arm

Fig. 7-40

<Mounting>

1) Apply grease. (See Fig. 7-41.)
2) Push mode arm ㉒ in the direction of arrow Ⓐ, and mount the M slider ⓰, noting the positioning of the other parts in Fig. 7-42. and mount the stopper washer ㉑.
3) Mount hard brake S ❷ and spring ⓳.
4) Apply grease. (See Fig. 7-43.)
5) Apply a half drop of oil from the shaft ㉓ groove to the bottom, mount the pinch press lever assembly ⓲ and the E ring ⓱.
6) Mount RL arm assembly ⓯, mount the ring lock spring ⓮ and the stopper washer ⓭.
7) Mount the RVS arm ⓬.
8) Mount B release slider ⓫ and stopper washer ❿.
9) Mount REW brake assembly ❾.
10) Mount the two springs ❽.

Note: Mount the springs as follows, being careful not to mix them up.

- B release slider spring: total diameter 2 mm, wire diameter 0.18 mm
- REW brake assembly spring: total diameter 1.6 mm, wire diameter 0.12 mm

11) Push the M slider ⓰ all the way to the left.
12) Set to EJECT mode.
13) Perform 7-3-14. <Mounting> steps 7), 8) and 9).
14) Set to LOADING/UNLOADING mode.
15) Insert the drive assembly ❽ horizontal shaft into the vertical switching slider ㉔ groove, and insert the protrusion on the RVS arm ⓬ into the notch in the drive assembly ❽ and mount with the two screws ❻.
16) Mount T brake assembly ❺ and S main brake assembly ❹. Mount the two stopper washers ❸ and the spring ❷. (See Fig. 7-40.)
17) Mount the tension regulator load arm assembly according to 7-3-11. <Mounting> step 2).
18) Perform 7-3-14. <Mounting> steps 11) – 16).
19) Mount the loading ring assembly according to 7-3-7. <Mounting>.
20) Mount the tension regulator band assembly according to 7-3-5. <Mounting>.
21) Mount the tension regulator arm assembly according to 7-3-4. <Mounting>.
22) Mount the pinch press arm assembly according to 7-3-3. <Mounting>.
23) Mount the timing belt ❶.
24) Mount the MD-14 board by performing the procedure in Section 2, 2-9. in reverse.

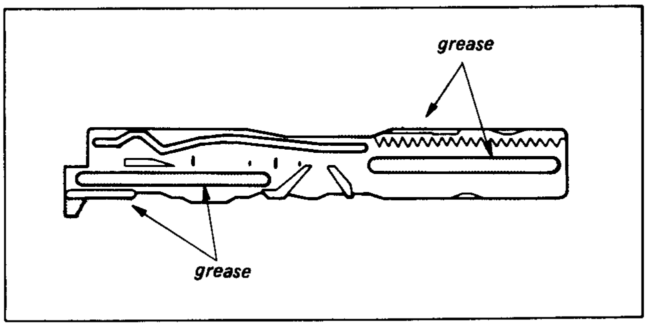


Fig. 7-41

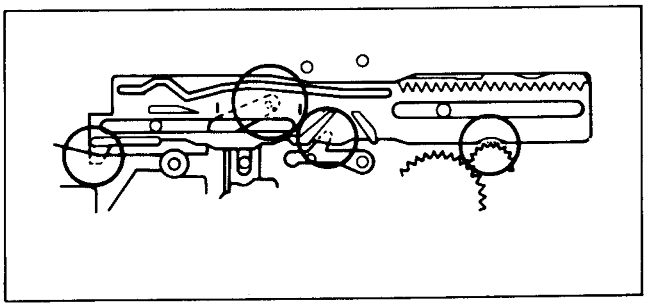


Fig. 7-42

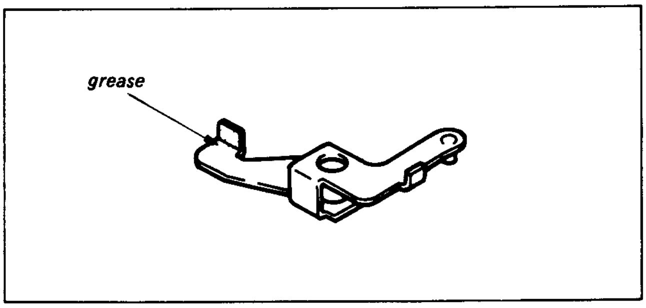


Fig. 7-43

7-3-16. Capstan Motor Assembly

<Removal>

1) Remove the loading ring assembly according to 7-3-7. <Removal>. (See Fig. 7-12.)
2) Open the MD-14 board according to Section 2, 2-9.
3) Remove screw ❶ and MD harness clamper A ❷ .
4) Remove timing belt ❸ .
5) Remove screw ❹ and remove conversion gear base assembly ❺ with a screwdriver. (Fig. 7-44, 45.)
6) Remove connectors ❻ and ❼ .
7) Remove the two screws ❽ and remove the capstan motor assembly ❾ in the direction of arrow Ⓐ . (Fig. 7-45.)

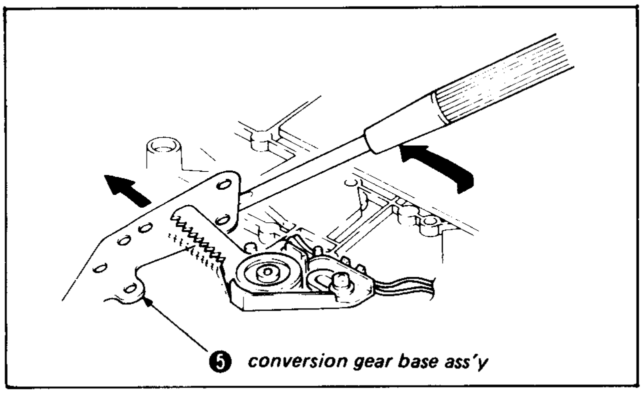

❺ conversion gear base ass'y

Fig. 7-44

<Mounting>

1) Mount capstan motor assembly ❾ and tighten the two screws ❽ .
2) Connect connectors ❻ and ❼ .
3) Mount conversion gear base assembly ❺ and tighten screw ❹ .
4) Mount timing belt ❸ .
5) Mount MD harness clamper A ❷ and tighten screw ❶ . (Fig. 7-45.)
6) Mount the MD-14 board by following the procedure in Section 2, 2-9. in reverse.
7) Mount the loading ring assembly according to 7-3-7. <Mounting>. (Fig. 7-12.)

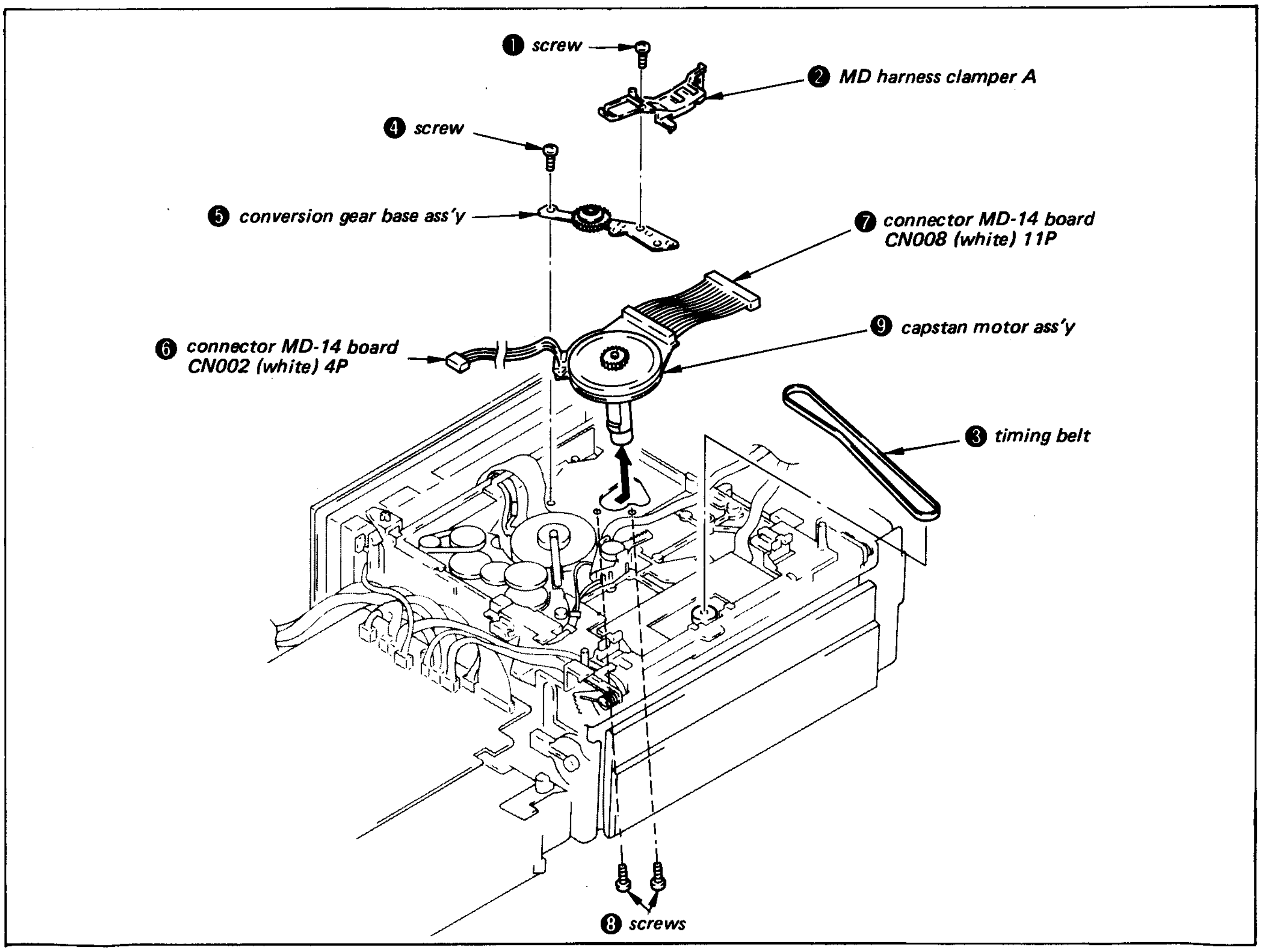

❶ screw
❷ MD harness clamper A
❹ screw
❺ conversion gear base ass'y
❼ connector MD-14 board CN008 (white) 11P
❾ capstan motor ass'y
❻ connector MD-14 board CN002 (white) 4P
❸ timing belt
❽ screws

Fig. 7-45

7-3-17. Replacement of Rotary Upper Drum

<Removal>

1) Remove the two hexagonal bolt screws ❶ and the dynamic damper ❷. (Fig. 7-46.)
2) Remove all 8 solders in section Ⓐ and confirm that the board and the pins on the bottom can move freely, using tweezers or the like. (Fig. 7-46.)
3) Remove the two hexagonal bolt screws ❸. (Fig. 7-46.)
4) Mount the supplied jig Ⓑ (Ref No. J-10) on the dynamic damper mounting hole with the two supplied screws ❹, and mount the supplied hexagonal bolt screw ❺ on supplied jig Ⓑ, then remove the rotary upper drum ❻. (Fig. 7-47.)

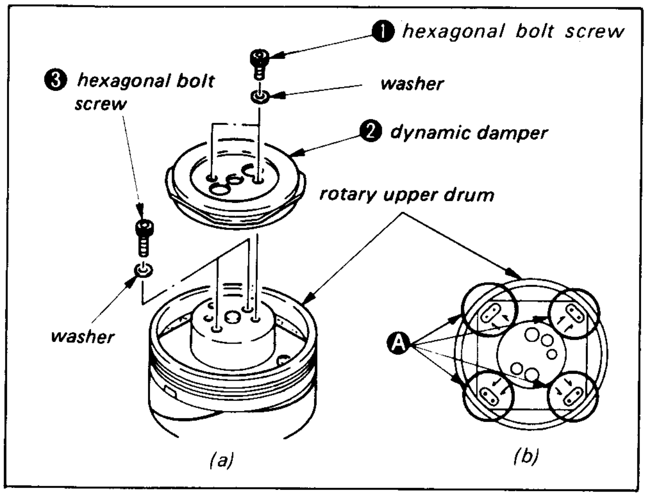

❶ hexagonal bolt screw
❸ hexagonal bolt screw
washer
❷ dynamic damper
rotary upper drum
washer
Ⓐ
(a)
(b)

Fig. 7-46

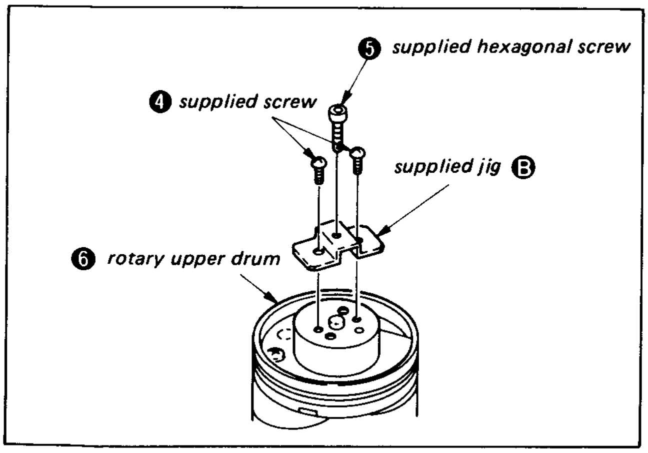

❺ supplied hexagonal screw
❹ supplied screw
supplied jig Ⓑ
❻ rotary upper drum

Fig. 7-47

<Mounting>

1) Clean the flange surface and the surface of the rotary upper drum which contacts it, making sure that there is no dirt or scratches.
2) Use jig Ⓒ (Ref No. J-10) to line up rotary upper drum ❻ and the positioning hole Ⓓ, and lightly insert the rotary upper drum. At this time make sure that the pins come above the rotary upper drum board. Fix with tweezers if the pins catch. (Fig. 7-48.)
3) Remove jig Ⓒ and push the rotary upper drum in by hand, gently. (Fig. 7-49.) When it is not inserted all the way, tighten the two hexagonal bolt screws ❸ alternately to temporarily fix it.
4) Insert jig Ⓒ into the positioning hole Ⓓ again and make sure it goes in smoothly. If not, loosen the two screws ❸ and insert a clock screwdriver into the hole to fix.
5) Tighten the two screws ❸.
   Note: Be careful not to tighten too much.
6) Solder the pins in section Ⓐ. (Fig. 7-46.)
   Note: Be careful that the solder does not go under the board.
7) Mount the dynamic damper ❷ with the two screws ❶. (Fig. 7-46.)
   Note:
   - Be careful not to tighten too much.
   - Be careful not to mix up the hexagonal bolt screw ❶ (2X2.7) and ❸ (2X5)

Note: After mounting, be sure to perform 7-4. Tape Path Adjustment.

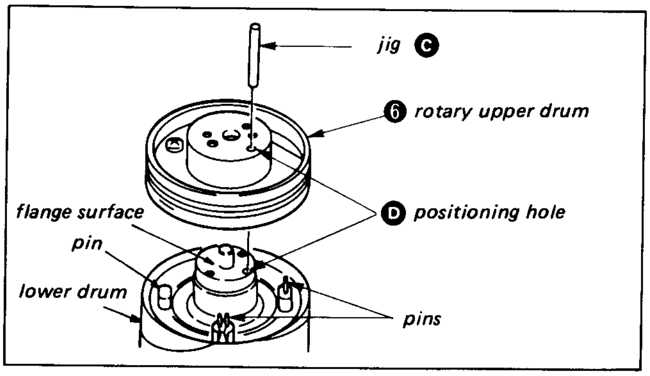

jig Ⓒ
❻ rotary upper drum
flange surface
Ⓓ positioning hole
pin
lower drum
pins

Fig. 7-48

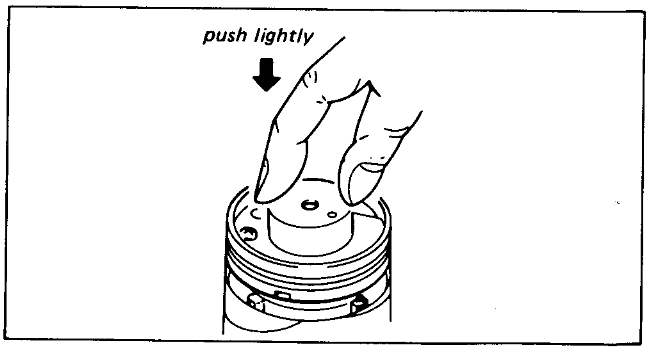
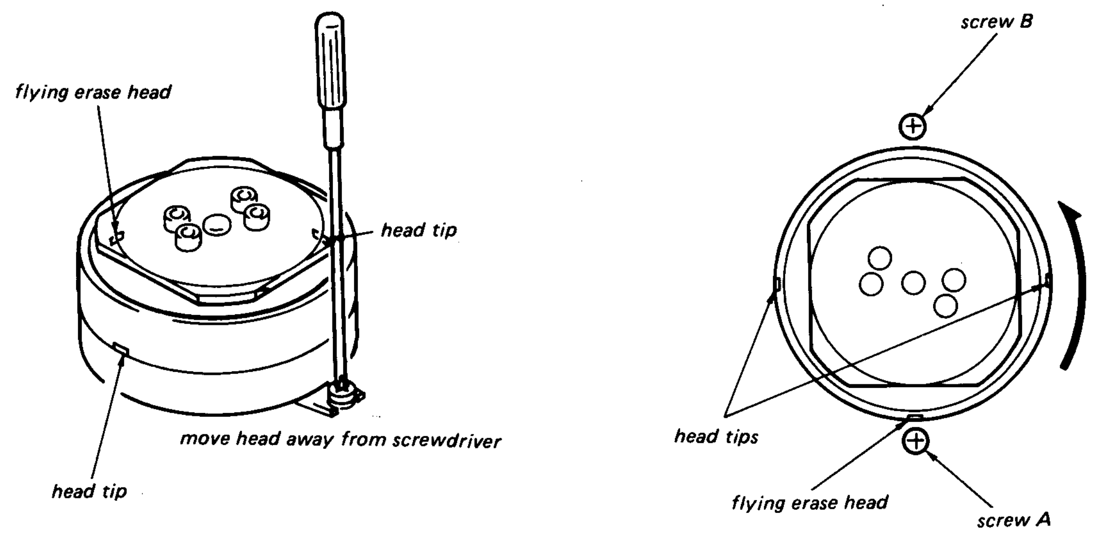

push lightly

Fig. 7-49

Notes on Drum Assembly and Rotary Upper Drum Mounting

1. When mounting the drum assembly with a magnetized screwdriver, mount with the head tip in the position shown below to prevent it from being affected by the screwdriver.
2. Be sure to perform tape path adjustment after mounting.


flying erase head
head tip
move head away from screwdriver
head tip
screw B
head tips
flying erase head
screw A

Tightening screw A

When tightening screw B, rotate the head halfway and check the head tip position.

Fig. 7-50

7-3-18. Replacement of Drum Assembly

<Removal>

1) Open the MD-14 board according to Section 2, 2-9.
2) Remove screw ❶ and the shaft ground pin 2 . (Fig. 7-51.)
3) Remove the four connectors ❸ .
4) Remove the two screws ❹ .
5) Remove the drum assembly ❺ . (Fig. 7-52.)

Note: At this time, be careful that the drum assembly does not hit No. 3 guide, etc.

<Mounting>

1) Mount drum assembly ❺ and tighten the two screws ❹ .
2) Connect the four connectors ❸ . (Fig. 7-52.)
3) Mount shaft ground pin 2 and tighten screw ❶ . (Fig. 7-51.)
4) Mount the MD-14 board by following the procedure in Section 2, 2-9. in reverse.

Note: Be sure to perform 7-4. Tape Path Adjustment after mounting.

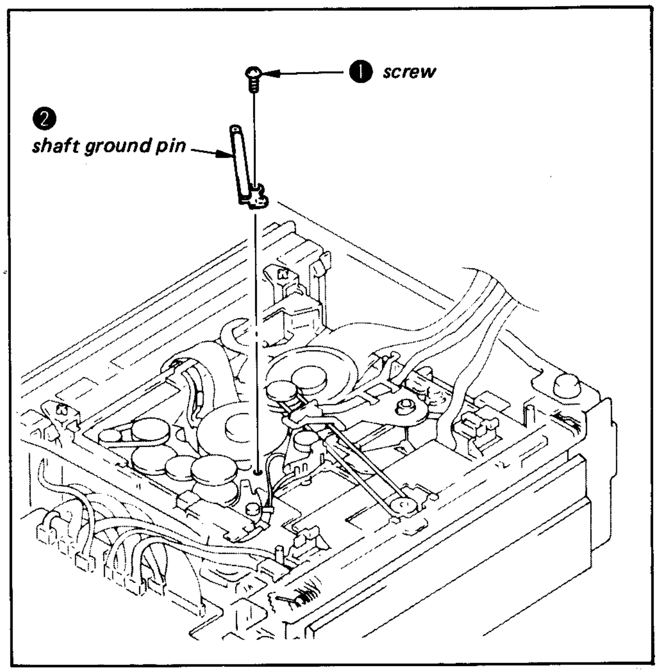

❶ screw
❷
shaft ground pin

Fig. 7-51

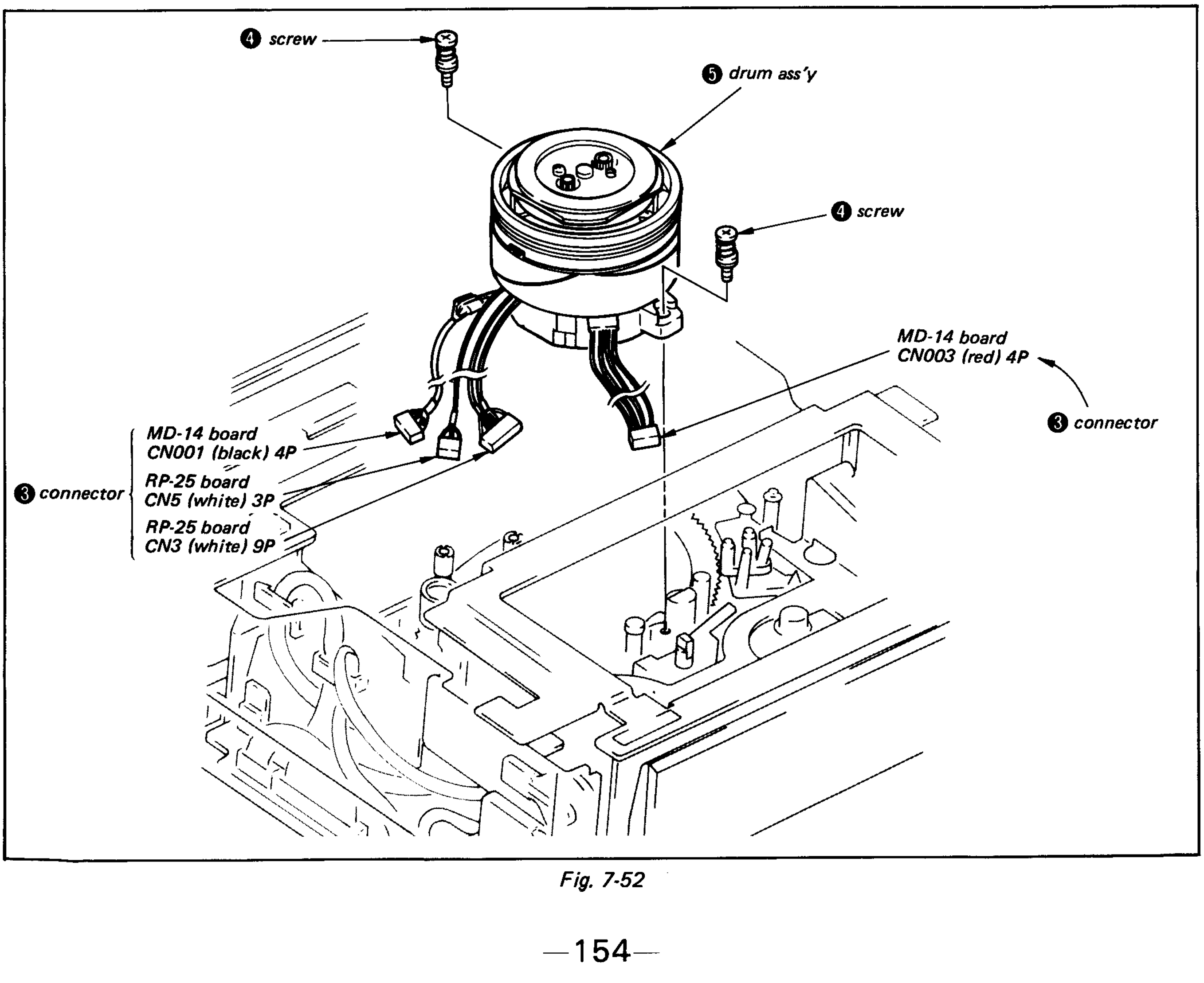

❹ screw
❺ drum ass'y
❹ screw
MD-14 board
CN003 (red) 4P
❸ connector
MD-14 board
CN001 (black) 4P
❸ connector
RP-25 board
CN5 (white) 3P
RP-25 board
CN3 (white) 9P

Fig. 7-52

7-3-19. Adjustment after Replacement of No. 3 Guide and No. 4 Guide

For replacement of both No. 3 and No. 4 guides, line up the tape along the upper flange after replacing. (See Fig. 7-99.)

7-3-20. No. 5 Guide Assembly

<Removel>

1) Remove the three screws ❶ and No. 5 guide assembly.
2) Remove guide nut ❷ , spring ❸ and No. 5 guide roller assembly ❹ . (Fig. 7-53.)

<Mounting>

1) Insert spring ❸ into No. 5 guide roller assembly ❹ , engage the bottom section and tighten guide nut ❷ .
2) Mount No. 5 guide assembly and tighten the three screws ❶ . (Fig. 7-53.)

Note: Be sure to perform 7-4. Tape Path Adjustment after mounting.

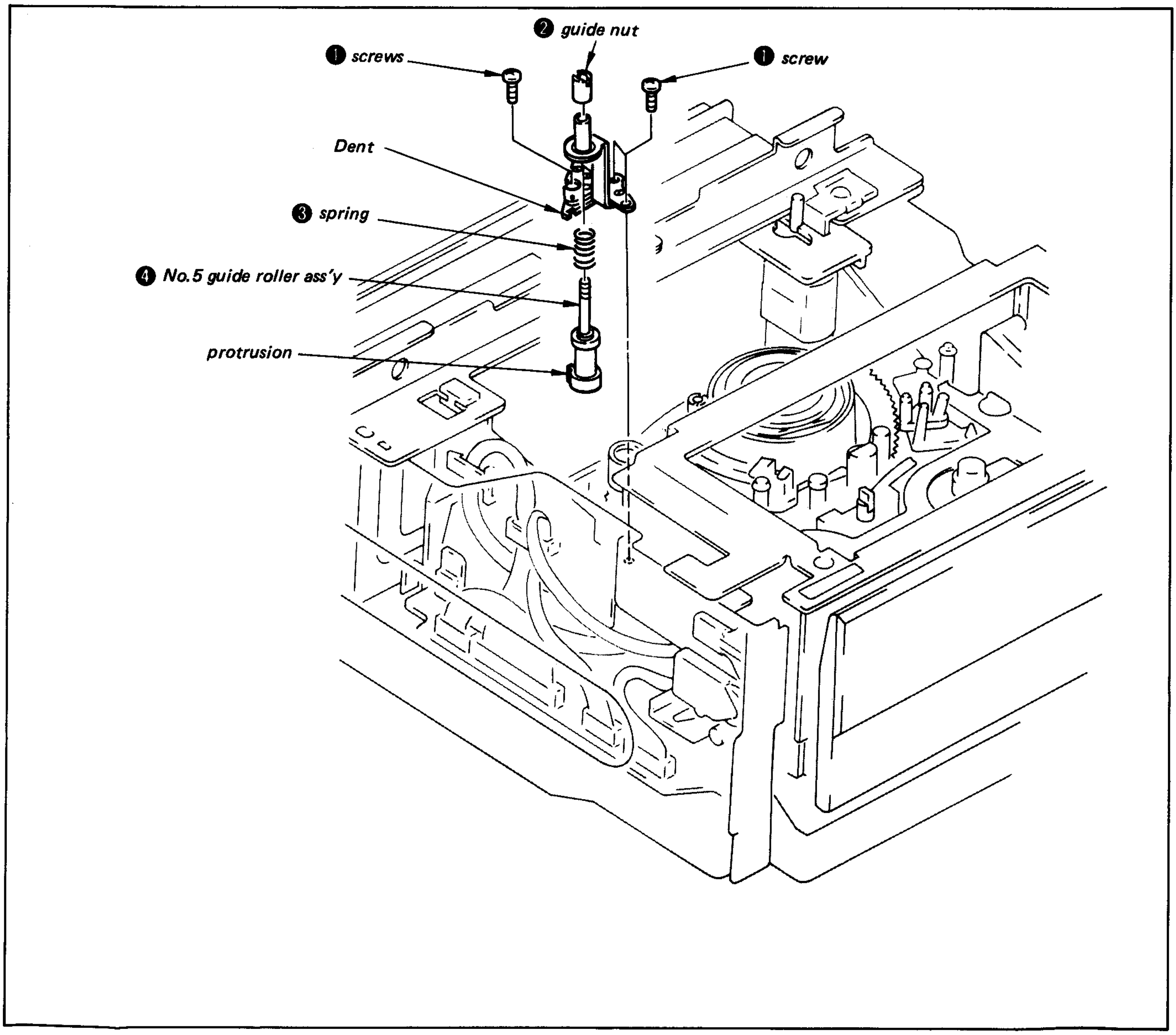

❷ guide nut
❶ screws
❶ screw
Dent
❸ spring
❹ No.5 guide roller ass'y
protrusion

Fig. 7-53

7-3-21. FWD Back Tension Adjustment

1) Remove the cassette compartment assembly according to Section 2, 2-4.
2) Remove the mechanism according to Section 2, 2-13.
3) Set to LOADING END FWD mode.
4) Loosen band adjustment plate ❶ screw ❷ and adjust as shown by arrow Ⓐ so that the tension regulator arm assembly slit ❸ and tension regulator arm assembly pin ❹ are positioned as shown, and tighten screw ❷.
5) Place tension measurement reel (Ref No. J-7) ❻ on the S reel table assembly ❺ and line up with No. 1 guide, No. 2, No. 3 guide and the drum.
6) Pull dial tension gauge (Ref No. J-6) ❼ in the direction of arrow Ⓑ and hook spring ❾ onto the tension regulator spring hook assembly ❽ so that the value is 12.5 ± 1g, as shown. (Fig. 7-54.)

Value too large: arrow Ⓒ direction

Value too small: arrow Ⓓ direction

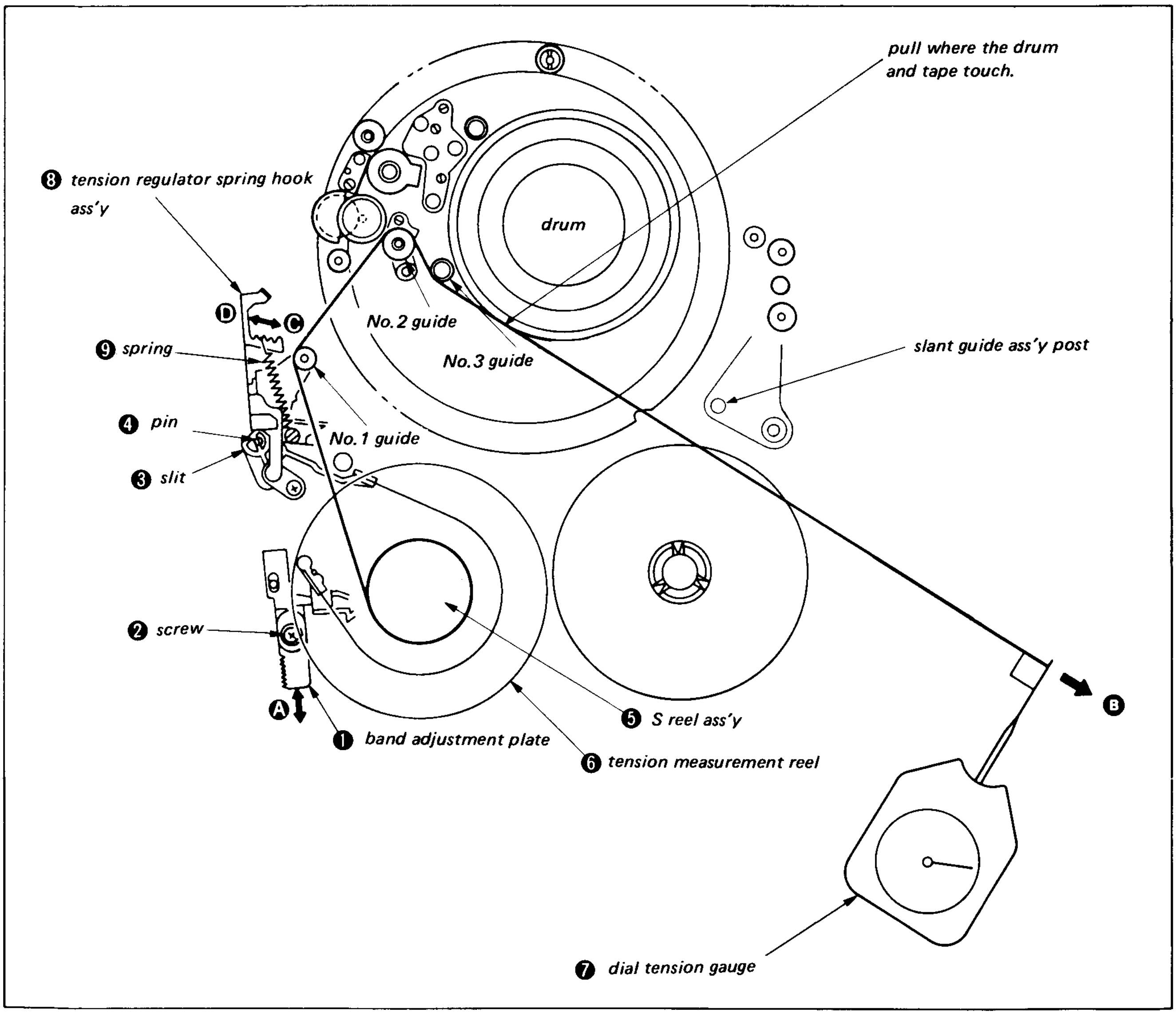

pull where the drum and tape touch.
❽ tension regulator spring hook ass'y
drum
Ⓓ
Ⓒ
❾ spring
No. 2 guide
No. 3 guide
slant guide ass'y post
❹ pin
No. 1 guide
❸ slit
❷ screw
Ⓐ
Ⓑ
❶ band adjustment plate
❺ S reel ass'y
❻ tension measurement reel
❼ dial tension gauge

Fig. 7-54

7-3-22. Check and Adjustment of Timing Belt Tension

Adjustment Procedure

1) Remove cathode side of the D001 on the MD-14 board and connect the ammeter between the P.C. board and it. (See Fig. 7-58.)
2) Pull out CN050 on the MD-14 board and short-circuit pins ②, ③ and ④ with jumpers. Then connect these pins ②, ③, ④ and pin ② of W011 on the SS-66 board with a resistor of 100 kΩ.
3) Cover the TE-2 board tape end sensor with non-transparent tape and perform loading.
4) Remove timing belt (1), washer (2), the gear flange (3) and conversion gear assembly (4). (Fig. 7-55.)
5) Remove the pinch press arm side (round hook side) of the tension coil spring on the pinch press arm assembly.
6) Press the RECOG SW erase prevention pin, secure with adhesive tape, and press the REC button for recording operation. (Fig. 7-57.)
7) Measure current (Io) during no load state on the ammeter.
8) Mount the conversion gear assembly (4), gear flange (3), washer (2) and timing belt (1).
9) Remove drive gear (B) according to the instructions in 7-3-14. (Fig. 7-38.)
10) Perform REC operation according to step 6), and measure the current at this time (Ix) the same as in step 7). (tension adjustment)
11) Confirm that the current during tension adjustment (Ix) is 10 mA – 20 mA higher than the current measured in no load state (Io). If the values are not as specified, perform the following adjustment.

Adjustment Procedure

i) Loosen screw (1), slide in the direction of arrow A and tighten screw (1). (Fig. 7-59.)
ii) Perform the checks in steps 10) and 11).
iii) Repeat i) and ii) until the specifications are met.

12) Install D001, which has been removed in step 1), to the original position, remove the resistor of 100 kΩ which has been short-circuited between the connector pins in step 2), and perform turning of the power supply switch ON and OFF once.
13) Mount drive gear (B) and pinch press arm assembly coil tension spring. (Fig. 7-56.)

Note: Use a MAX 1A ammeter. (1A current flows when the motor is kicked.)

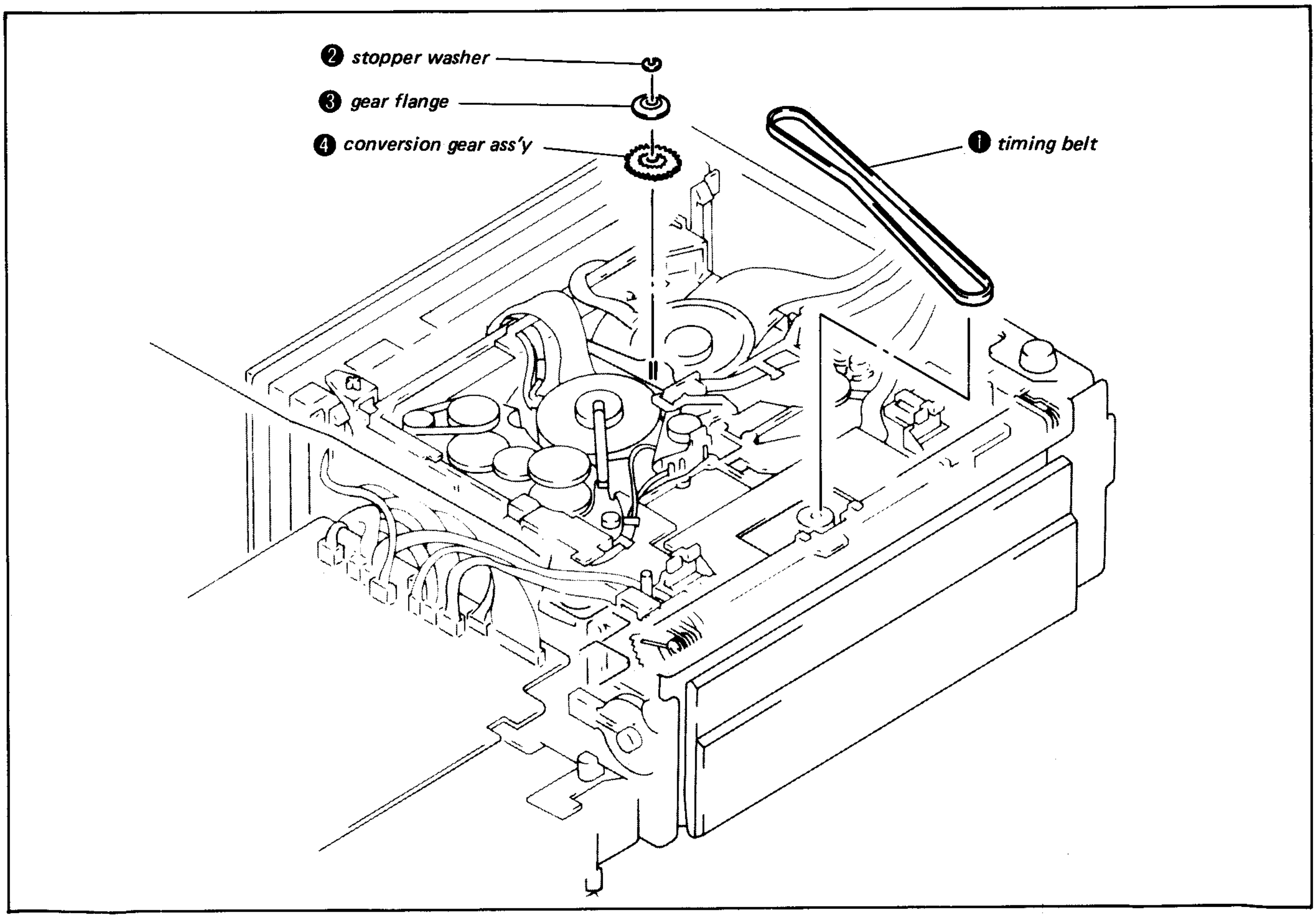


Fig. 7-55

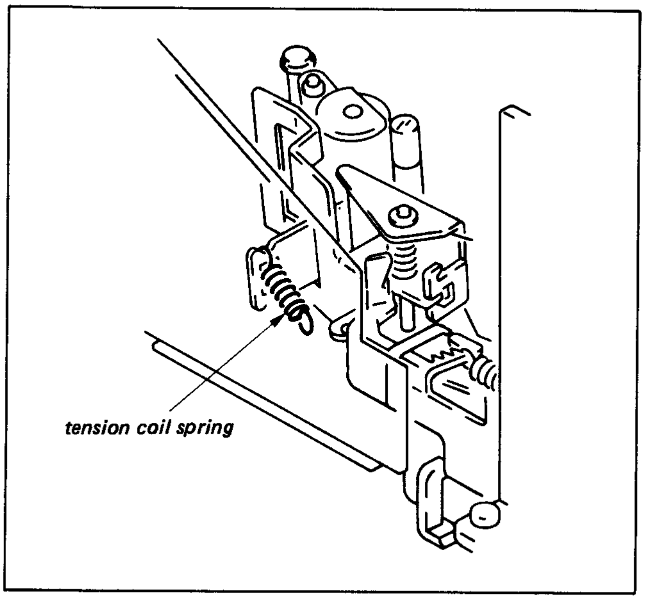

tension coil spring

Fig. 7-56

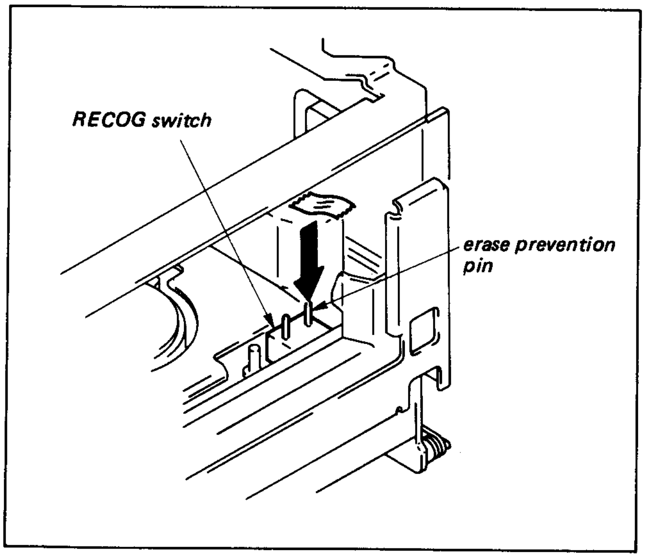

RECOG switch
erase prevention pin

Fig. 7-57

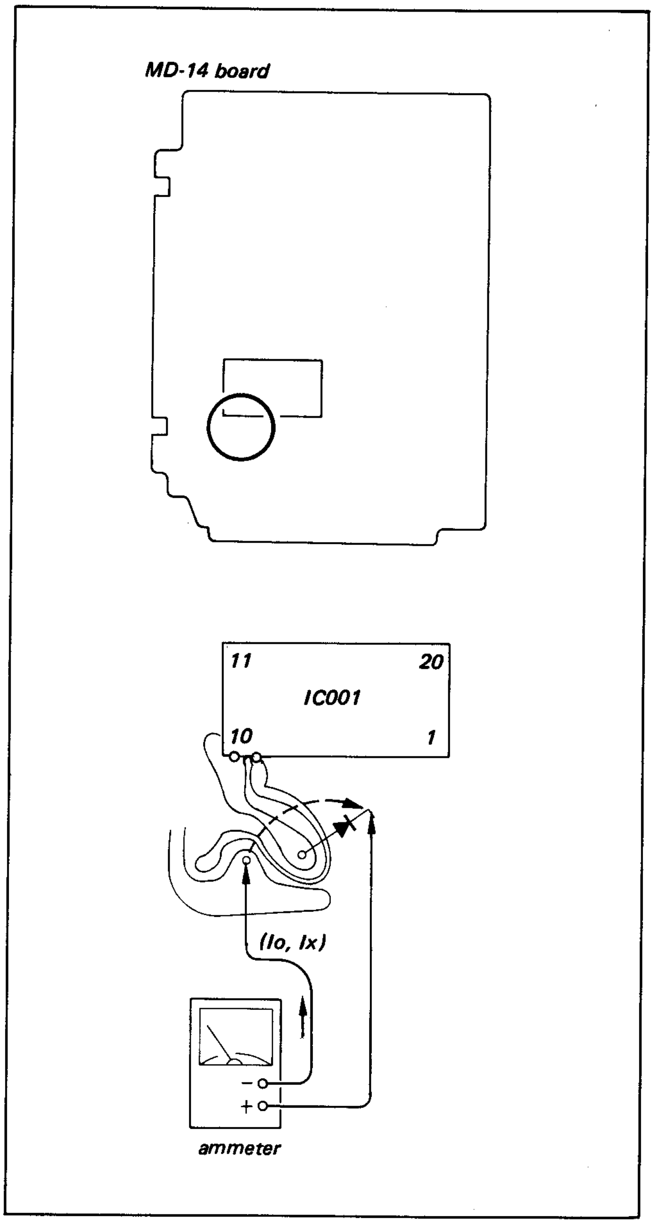

MD-14 board
11
20
IC001
10
1
(Io, Ix)
ammeter
−
+

Fig. 7-58

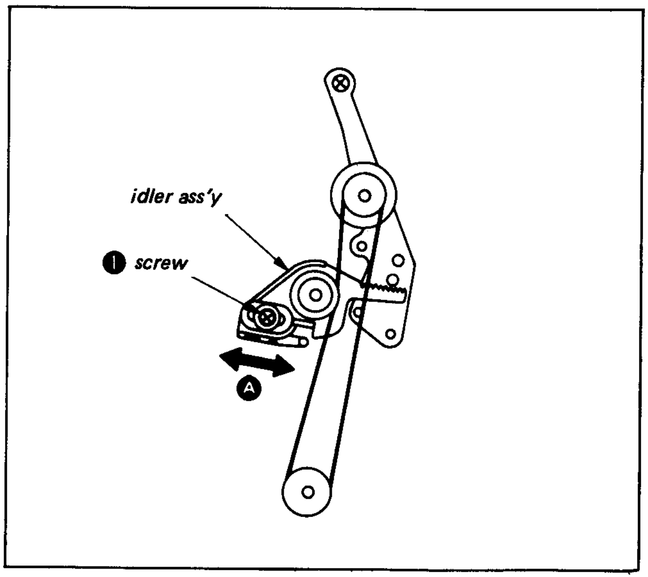

idler ass'y
❶ screw
Ⓐ

Fig. 7-59

7-3-23. Gear Replacement and Adjustment (Cassette Compartment Ass'y)

<Drive Gear (R) Replacement and Adjustment>

1) Remove the cassette compartment assembly according to Section 2, 2-4.
2) Release C lock plate ❶ and raise FC holder assembly ❷.
3) Remove stopper washer ❸ and relay gear ❹.
4) Replace drive gear (R) ❺.
5) Insert a thin rod into drive gear (R) ❺ positioning hole ❻ and door gear R positioning hole ❼ and make sure that it goes through.
6) Mount relay gear ❹ and stopper washer ❸.
7) Close door gear coupling plate ❽ and confirm that FC holder assembly ❷ locks.
8) Confirm that door gear coupling plate ❽ and FC side plate R ❾ are parallel.
9) Release C lock plate ❶ and check that FC holder assembly ❷ comes up and door gear coupling plate ❽ opens. Also, confirm that the FC holder assembly ❷ goes down and locks when the door gear coupling plate ❽ is closed. (Fig. 7-60.)
10) Mount the cassette compartment assembly by following the procedure in Seciton 2, 2-4. in reverse.

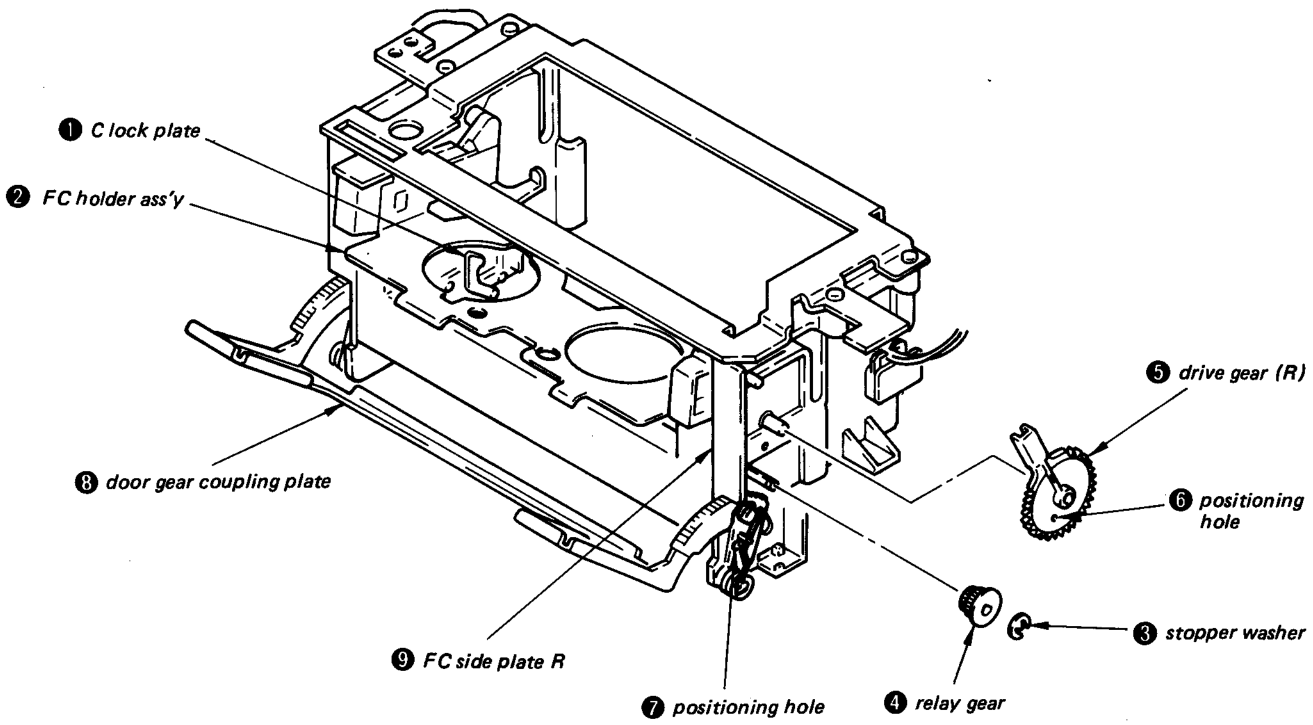

❶ C lock plate
❷ FC holder ass'y
❽ door gear coupling plate
❾ FC side plate R
❼ positioning hole
❹ relay gear
❸ stopper washer
❻ positioning hole
❺ drive gear (R)

Fig. 7-60

<Door Gear R, Replacement and Adjustment>

1) Remove the cassette compartment assembly according to Section 2, 2-4.
2) Release C lock plate ❶ and raise FC holder assembly ❷.
3) Remove coil spring ❸.
4) Remove stopper washer ❹ and relay gear ❺.
5) Remove screw ❻ and replace door gear R ❼.
6) Insert thin rods into door gear R ❼ positioning hole 8 and drive gear (R) positioning hole ❾.
7) Engage the relay gear ❺ with both gears and mount stopper washer ❹.
8) Temporarily tighten screw ❻.
9) Pull out the two rods.
10) Close door gear coupling plate ❿ and confirm that the FC holder assembly ❷ locks.
11) Insert a finger between the door gear coupling plate ❿ and FC side plate R ⓫ so that they become parallel, and tighten screw ❻.
12) Mount coil spring ❸.
13) Release C lock plate ❶ and confirm that FC holder assembly ❷ comes up and door gear coupling plate ❿ opens. Also, check that the FC holder assembly ❷ goes down and locks when the door gear coupling plate ❿ is closed. (Fig. 7-61.)
14) Mount the cassette compartment assembly by following the procedure in Section 2, 2-4. in reverse.

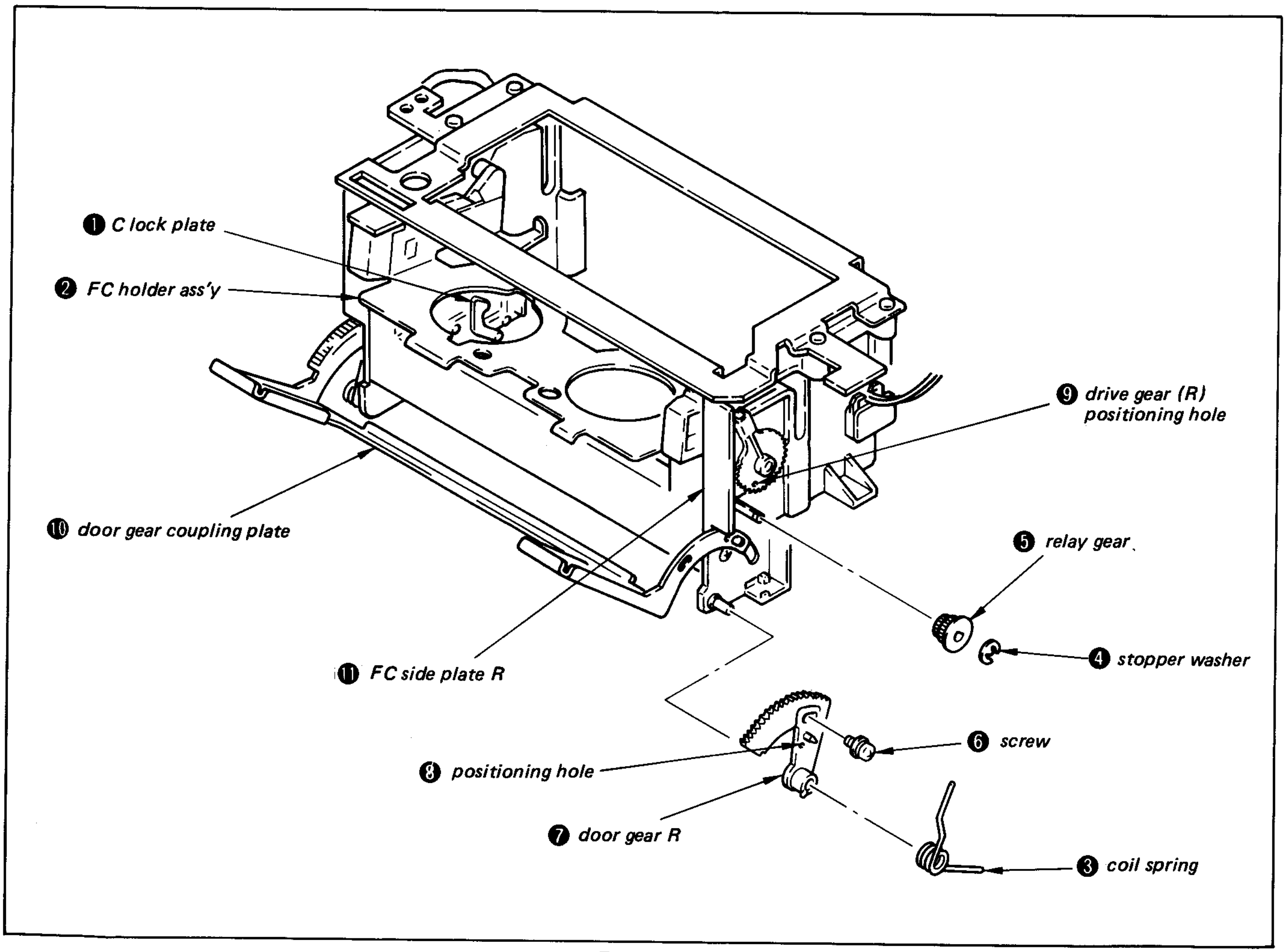

❶ C lock plate
❷ FC holder ass'y
❿ door gear coupling plate
⓫ FC side plate R
❽ positioning hole
❼ door gear R
❾ drive gear (R) positioning hole
❺ relay gear
❹ stopper washer
❻ screw
❸ coil spring

Fig. 7-61

<Drive Gear (L) Replacement and Adjustment>

1) Remove the cassette compartment assembly according to Section 2, 2-4.
2) Remove screw ❶ and FC harness cover ❷ .
3) Release C lock plate ❸ and raise FC holder assembly ❹ .
4) Remove screw ❺ and damper ❻ .
5) Remove stopper washer ❼ and relay gear ❽ .
6) Replace drive gear (L) ❾ .
7) Insert thin rods into drive gear (L) ❾ positioning hole $ and door gear L positioning hole ⓫ and confirm that they go through.
8) Mount the relay gear ❽ and stopper washer ❼ .
9) Close door gear coupling plate ⓬ and confirm that the FC holder assembly ❹ locks.
10) Confirm that the door gear coupling plate ⓬ and FC side plate L ⓭ are parallel.
11) Mount damper ❻ and tighten screw ❺ .
12) Mount FC harness cover ❷ and tighten screw ❶ .
13) Release C lock plate ❸ and confirm that the FC holder assembly ❹ comes up and the door gear coupling plate ⓬ opens. Also, confirm that the FC holder assembly ❹ goes down and locks when the door gear coupling plate ⓬ is closed. (Fig. 7-62.)
14) Mount the cassette compartment assembly, following the procedure in Section 2, 2-4. in reverse.

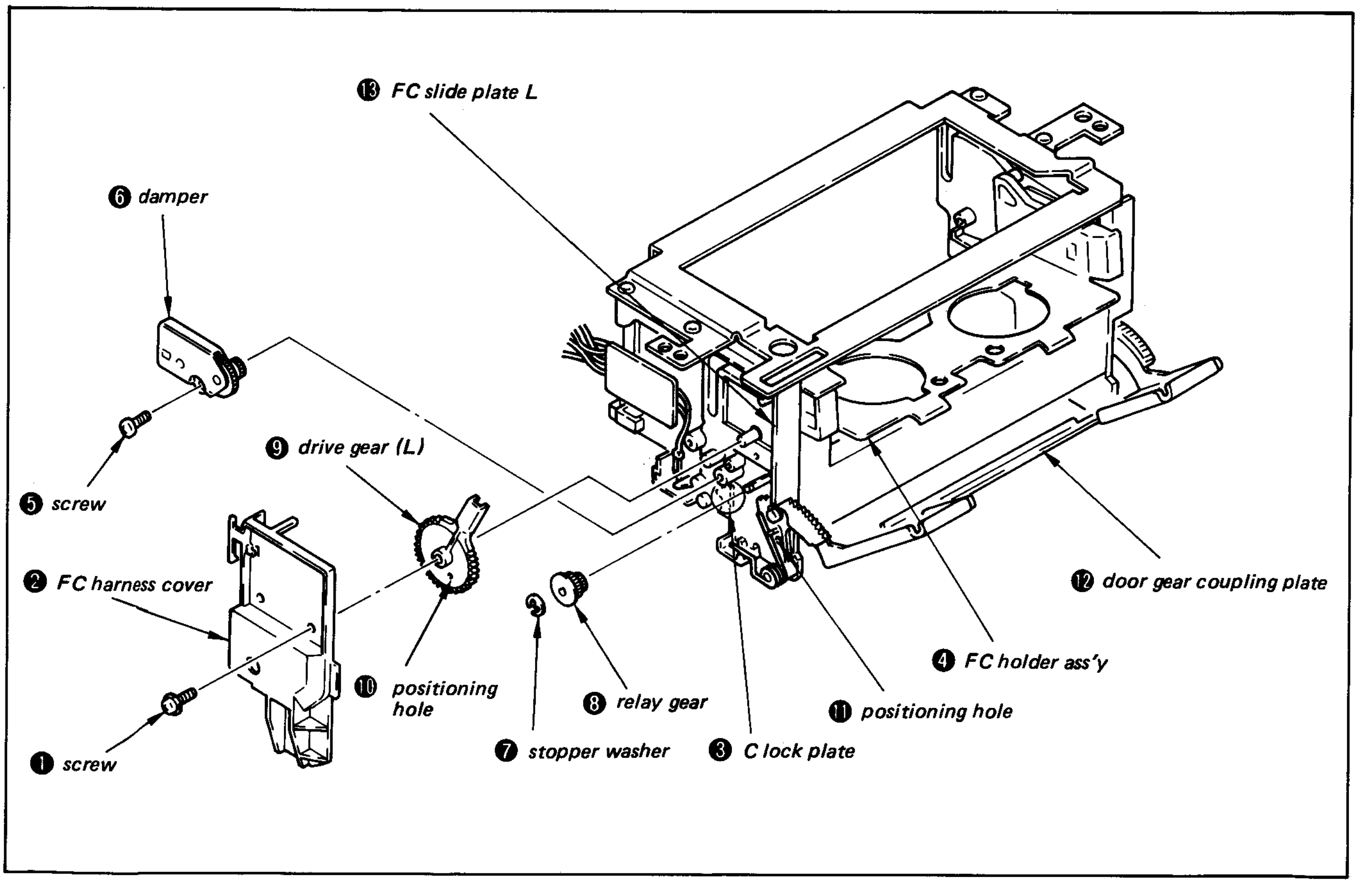

⓭ FC slide plate L
❻ damper
❾ drive gear (L)
❺ screw
❷ FC harness cover
⓬ door gear coupling plate
❹ FC holder ass'y
❿ positioning hole
❽ relay gear
⓫ positioning hole
❶ screw
❼ stopper washer
❸ C lock plate

Fig. 7-62

<Door Gear Replacement and Adjustment>

1) Remove the cassette compartment assembly according to Section 2, 2-4.
2) Remove screw ❶ and FC harness cover ❷ .
3) Release C lock plate ❸ and raise FC holder assembly ❹ .
4) Remove coil spring ❺ .
5) Remove stopper washer ❻ and relay gear ❼ .
6) Remove screw ❽ and replace door gear L ❾ .
7) Insert a thin rod into door gear L ❾ positioning hole ❿ and drive gear L positioning hole ⓫ .
8) Engage the relay gear ❼ with both gears and mount stopper washer ❻ .
9) Temporarily tighten screw ❽ .
10) Remove the two rods.
11) Close door gear coupling plate ⓬ and confirm that the FC holder assembly ❹ locks.
12) Insert a finger between the door gear coupling plate ⓬ and FC side plate L ⓭ so that they are parallel, and tighten screw ❽ .
13) Mount coil spring ❺ .
14) Mount FC harness cover ❷ and tighten screw ❶ .
15) Release C lock plate ❸ and confirm that the FC holder assembly ❹ comes up and door gear coupling plate ⓬ opens. Also, confirm that the FC holder assembly ❹ goes down and locks when the door gear coupling plate ⓬ is closed. (Fig. 7-63.)
16) Mount the cassette compartment assembly by following the procedure in Section 2, 2-4. in reverse.

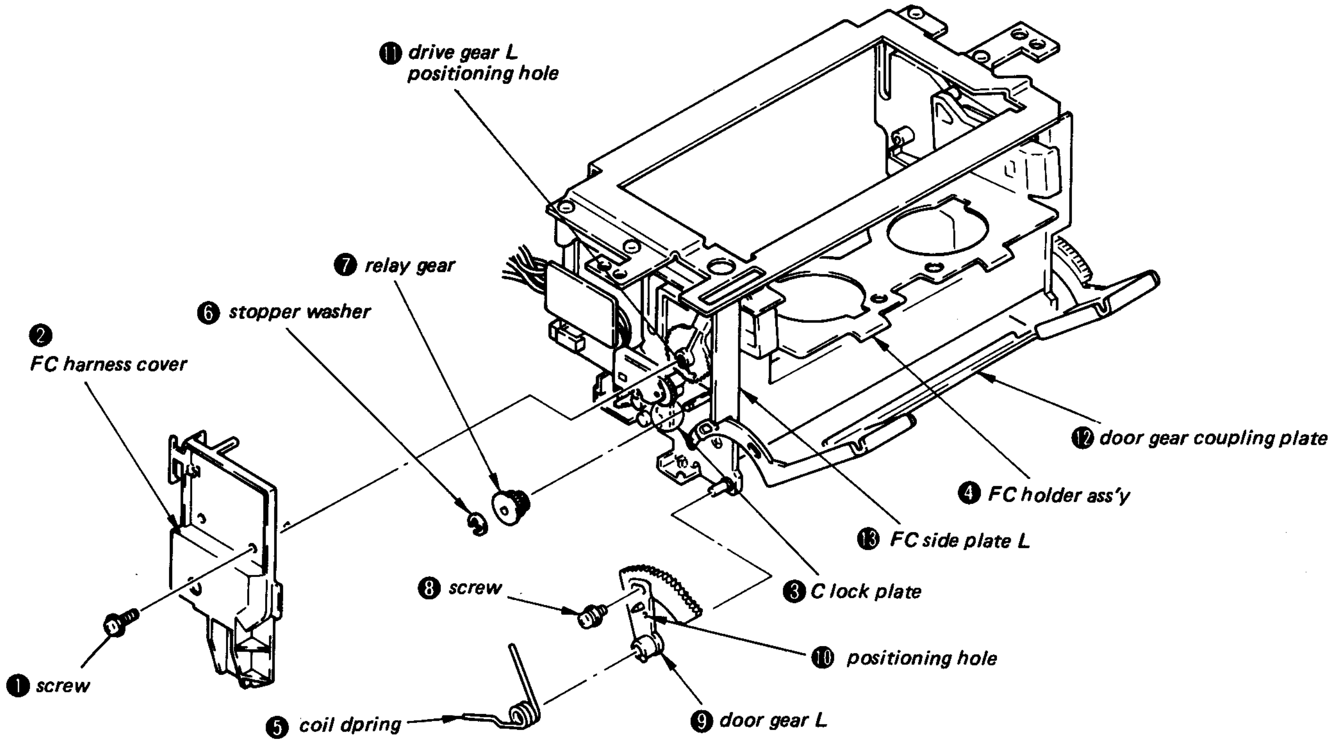

⓫ drive gear L positioning hole
❼ relay gear
❻ stopper washer
❷ FC harness cover
⓬ door gear coupling plate
❹ FC holder ass'y
⓭ FC side plate L
❽ screw
❸ C lock plate
❿ positioning hole
❶ screw
❺ coil dpring
❾ door gear L

Fig. 7-63

7-3-24. Check of S and T Main Brake Torque

1) Remove the front panel according to Section 2, 2-4.
2) Remove the cassette compartment assembly accroding to Section 2, 2-4.

<S Main Brake Torque>

1) Set to FF/REW mode.
2) Place the tension measurement reel (Ref No.J-8) on the S reel table.
3) Pull the dial tension gauge (Ref No.J-6) in the direction of the arrow and confirm that the specifications are satisfied. (Fig. 7-64, 65.)

<T Main Brake Torque>

1) Set to FF/REW mode.
2) Place the tension measurement reel (Ref No.J-8) on the T reel table.
3) Pull the dial tension gauge (Ref No.J-6) in the direction of the arrow and confirm that the specifications are satisfied. (Fig. 7-66, 67.)

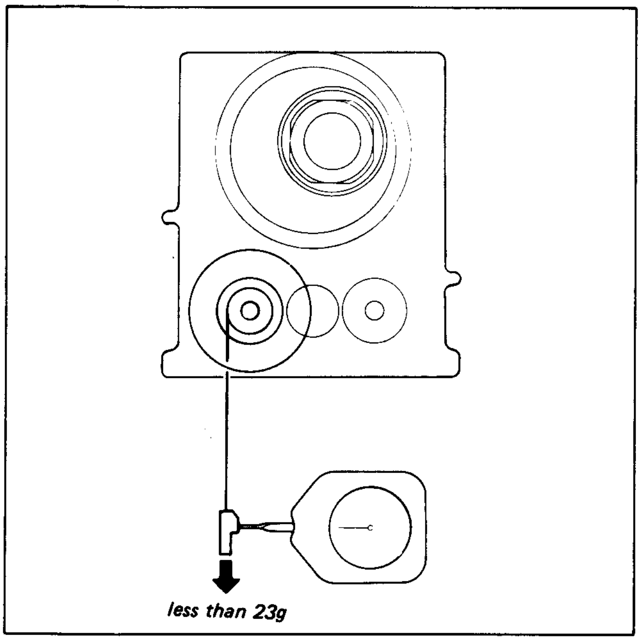


Fig. 7-64

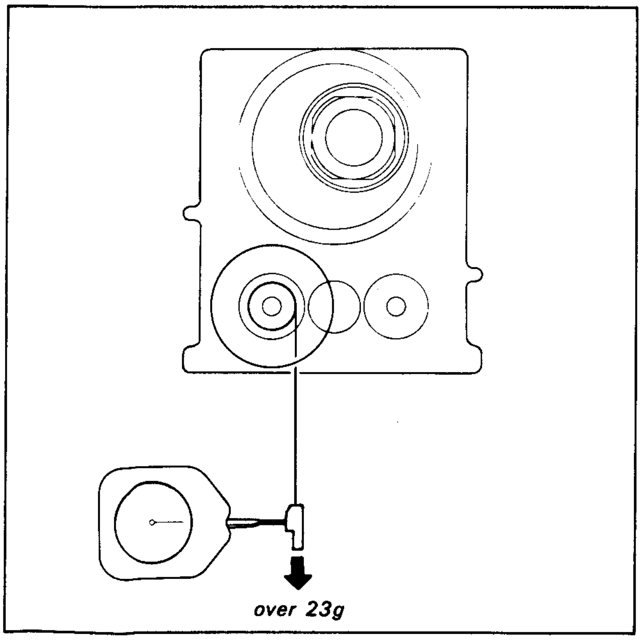


Fig. 7-65

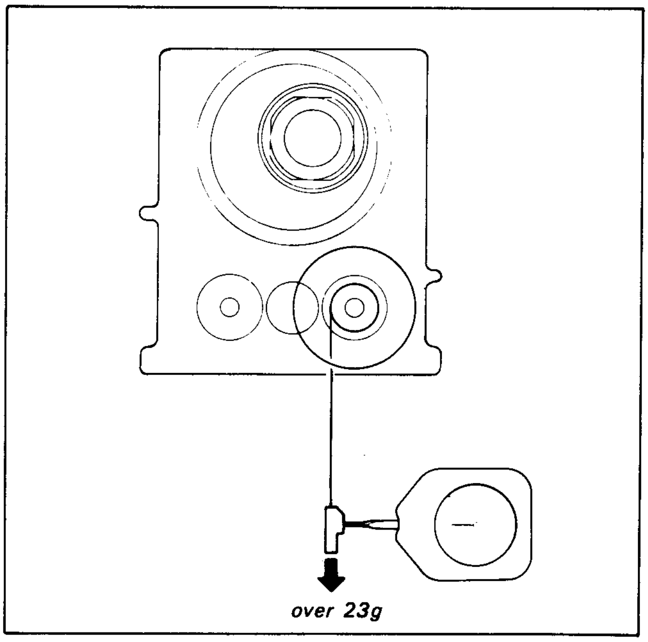


Fig. 7-66

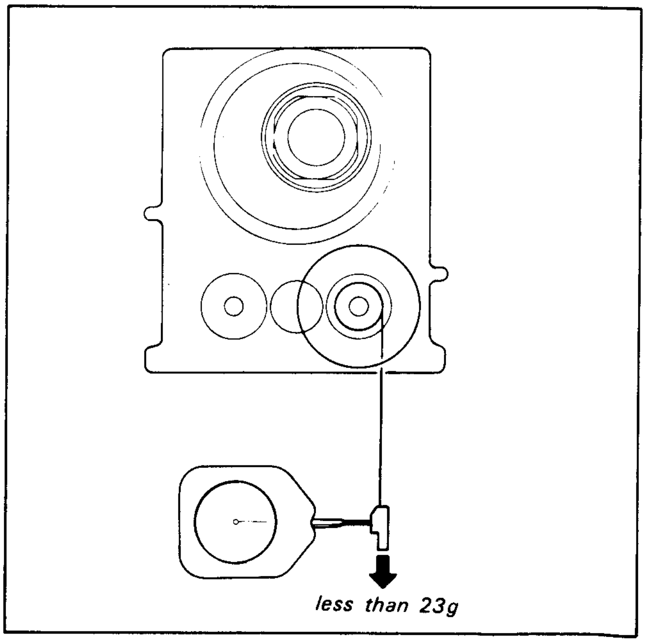


Fig. 7-67

7-3-25. Check of S and T Soft Brake Torque

1) Remove the front panel according to Section 2, 2-1.
2) Remove the cassette compartment assembly according to Section 2, 2-4.

<S Soft Brake Torque>

1) Set to FF/REW mode.
2) Place the tension measurement reel (Ref No.J-8) on the S reel table.
3) Release the S main brake with a finger.
4) Pull the dial tension gauge (Ref No.J-6) in the direction of the arrow and confirm that the specifications are satisfied. (Fig. 7-68.)

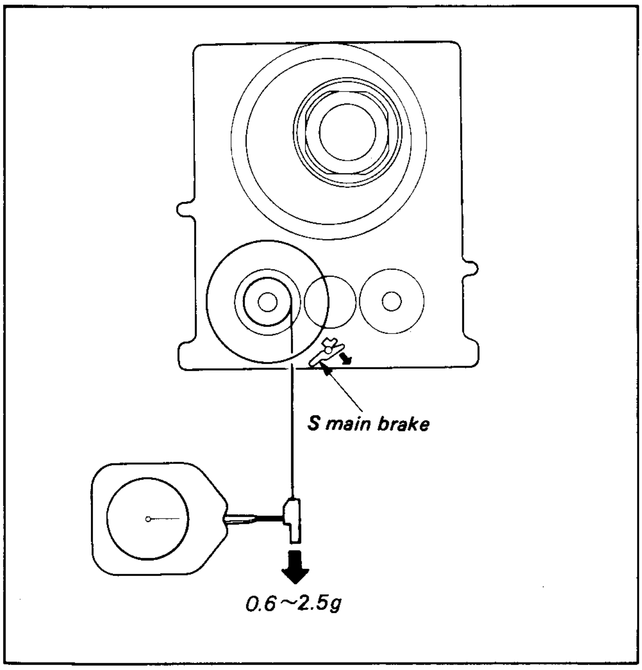


Fig. 7-68

<T Soft Brake Torque>

1) Set to REV mode.
2) Place the tension measurement reel (Ref No.J-8) on the T reel table.
3) Release the T main brake with a finger.
4) Pull the dial tension gauge (Ref No.J-6) in the direction of the arrow and confirm that the specifications are met. (Fig. 7-69.)

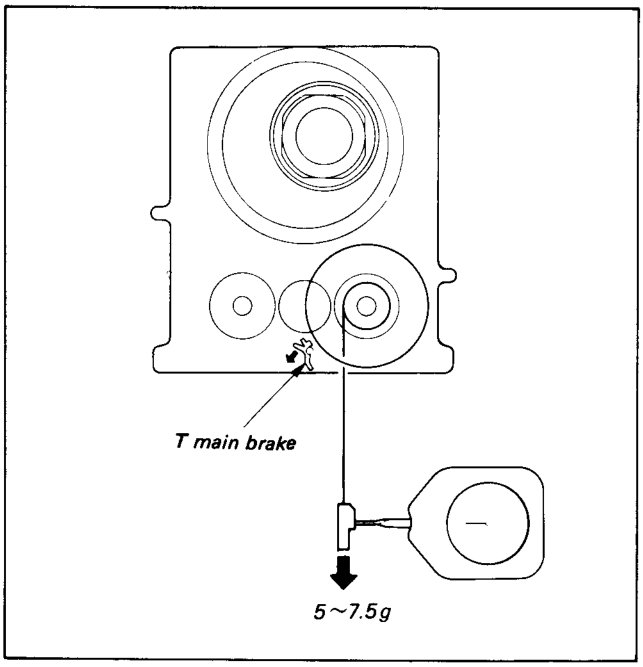


Fig. 7-69

7-3-26. Check of REV and REW Brake Torque

1) Remove the front panel according to Section 2, 2-1.
2) Remove the cassette compartment assembly according to Section 2, 2-4.

<REV Brake Torque>

1) Set to REV mode.
2) Place the tension measurement reel (Ref No.J-8) on the S reel table.
3) Release the S main brake with a finger.
4) Pull the dial tension gauge (Ref No.J-6) in the direction of the arrow and confirm that the specifications are satisfied. (Fig. 7-70.)

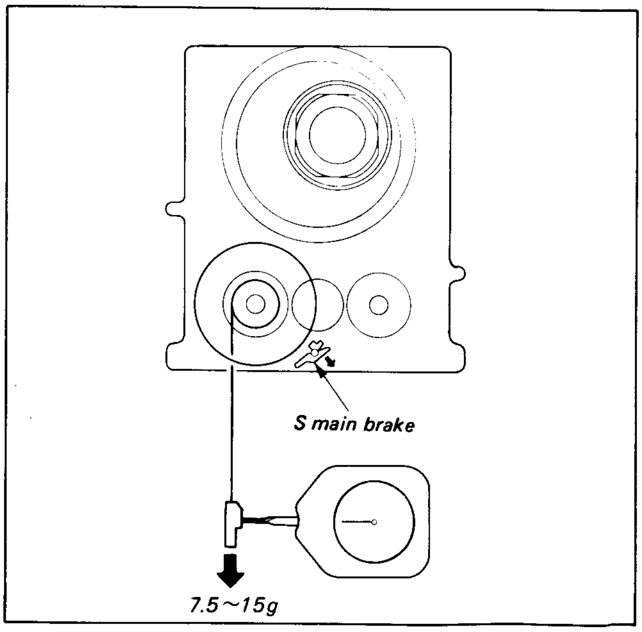


Fig. 7-70

<REW Brake Torque>

1) Set to $\boxed{\text{FF/REW}}$ mode.
2) Place the tension measurement reel (Ref No.J-8) on the T reel table.
3) Pull the dial tension gauge (Ref No.J-6) in the direction of the arrow and confirm that the specifications are met. (Fig. 7-71.)

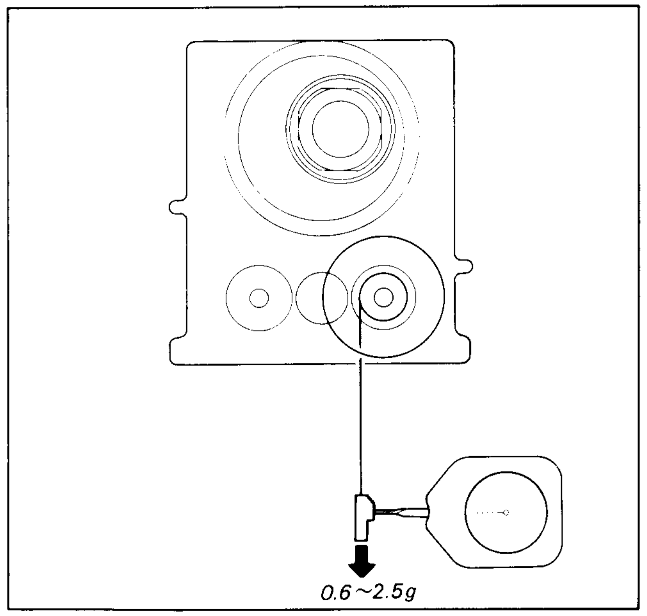
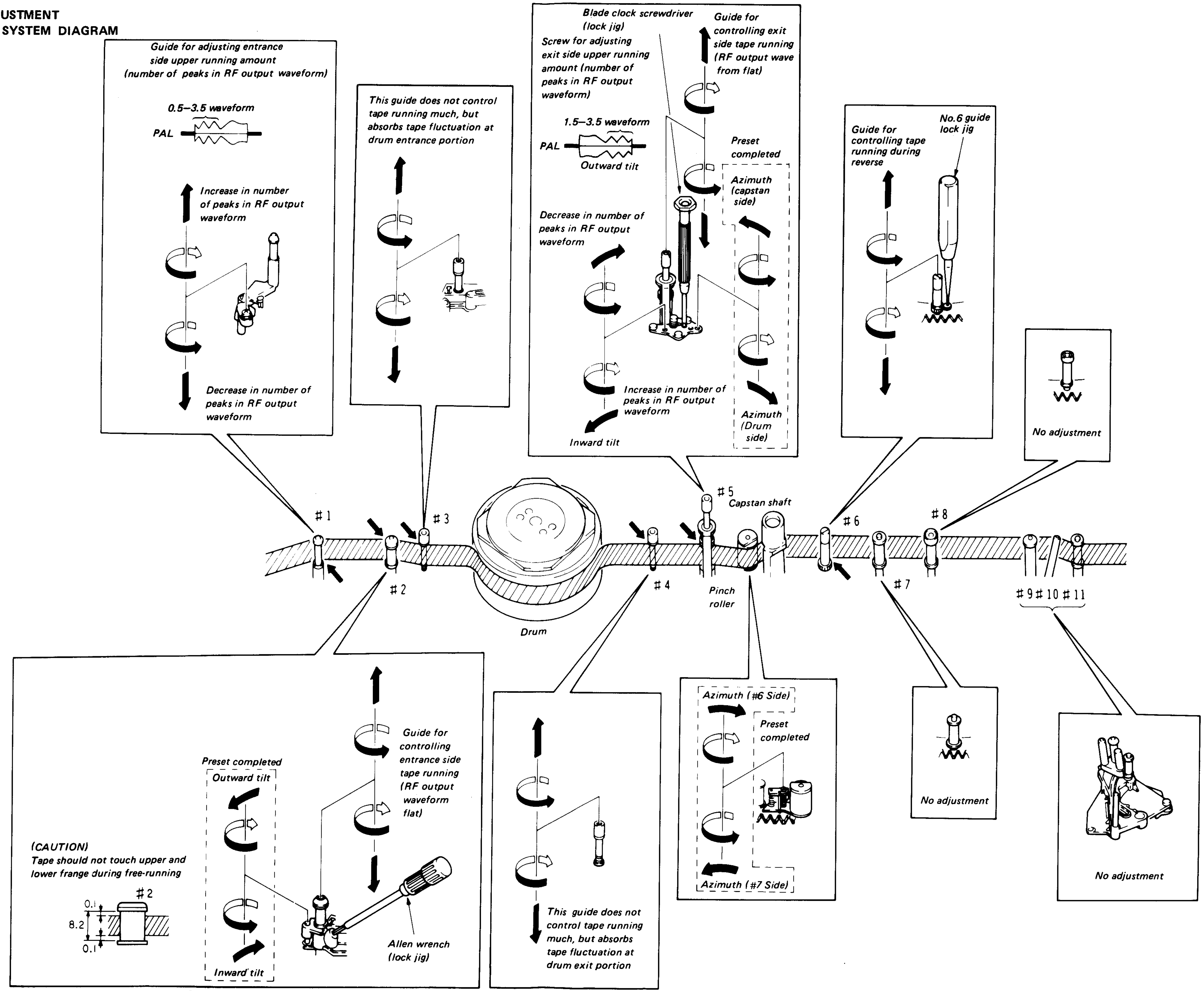


Fig. 7-71

7-3-27. Check by FWD, RVS Winding Torque Cassette

1) Insert the FWD, RVS winding torque cassette (Ref No.J-12).
2) Set for playback mode and confirm that T reel table torque is 9.5~15.5 g • cm.
3) Set for playback mode, and check that the S reel torque immediately after the REW button is pressed is 17-23 g • cm.
4) Replace the appropriate reel table if the above specifications are not met.

7-4. TAPE PATH ADJUSTMENT
TAPE RUNNING SYSTEM DIAGRAM



Guide for adjusting entrance side upper running amount (number of peaks in RF output waveform)

This guide does not control tape running much, but absorbs tape fluctuation at drum entrance portion

Screw for adjusting exit side upper running amount (number of peaks in RF output waveform)

Guide for controlling exit side tape running (RF output wave from flat)

Guide for controlling tape running during reverse

Guide for controlling entrance side tape running (RF output waveform flat)

(CAUTION)
Tape should not touch upper and lower frange during free-running

This guide does not control tape running much, but absorbs tape fluctuation at drum exit portion

0.5–3.5 waveform
PAL
Increase in number of peaks in RF output waveform
Decrease in number of peaks in RF output waveform
Blade clock screwdriver (lock jig)
1.5–3.5 waveform
PAL
Outward tilt
Preset completed
Azimuth (capstan side)
Decrease in number of peaks in RF output waveform
Increase in number of peaks in RF output waveform
Azimuth (Drum side)
Inward tilt
No.6 guide lock jig
No adjustment
#1
#2
#3
Drum
#4
#5
Capstan shaft
Pinch roller
#6
#7
#8
#9 #10 #11
Preset completed
Outward tilt
Inward tilt
Allen wrench (lock jig)
#2
0.1
8.2
0.1
Azimuth (#6 Side)
Preset completed
Azimuth (#7 Side)
No adjustment
No adjustment

[REGARDING TRACK SHIFT & MONITOR JIG]

The video 8 system employs a high precision tracking ATF (auto track finding) and instantaneously controls the tape running speed with the 4 kinds pilot signals. In this way, the tracking adjustment knob becomes unnecessary, and accurate tracing has become possible.

However, on the other hand, there has been difficulty in adjusting the tape path system with the ATF method. It was due to the fact that complete adjustment had been impossible to be performed because even when the tracing of the head had been a slightly off course, the ATF would perform correction automatically.

Because of this, adjustment is carried out to the tape path system by using the track shift & monitor jig (Ref. No. J-6080-843-A). As the track shift and monitor jig forcibly releases the ATF and sets the tracking amount (track shift) manually, the adjustment of the tape path system can easily be carried out.

Perform this adjustment after the electrical adjustment of Section 8 has been completed.

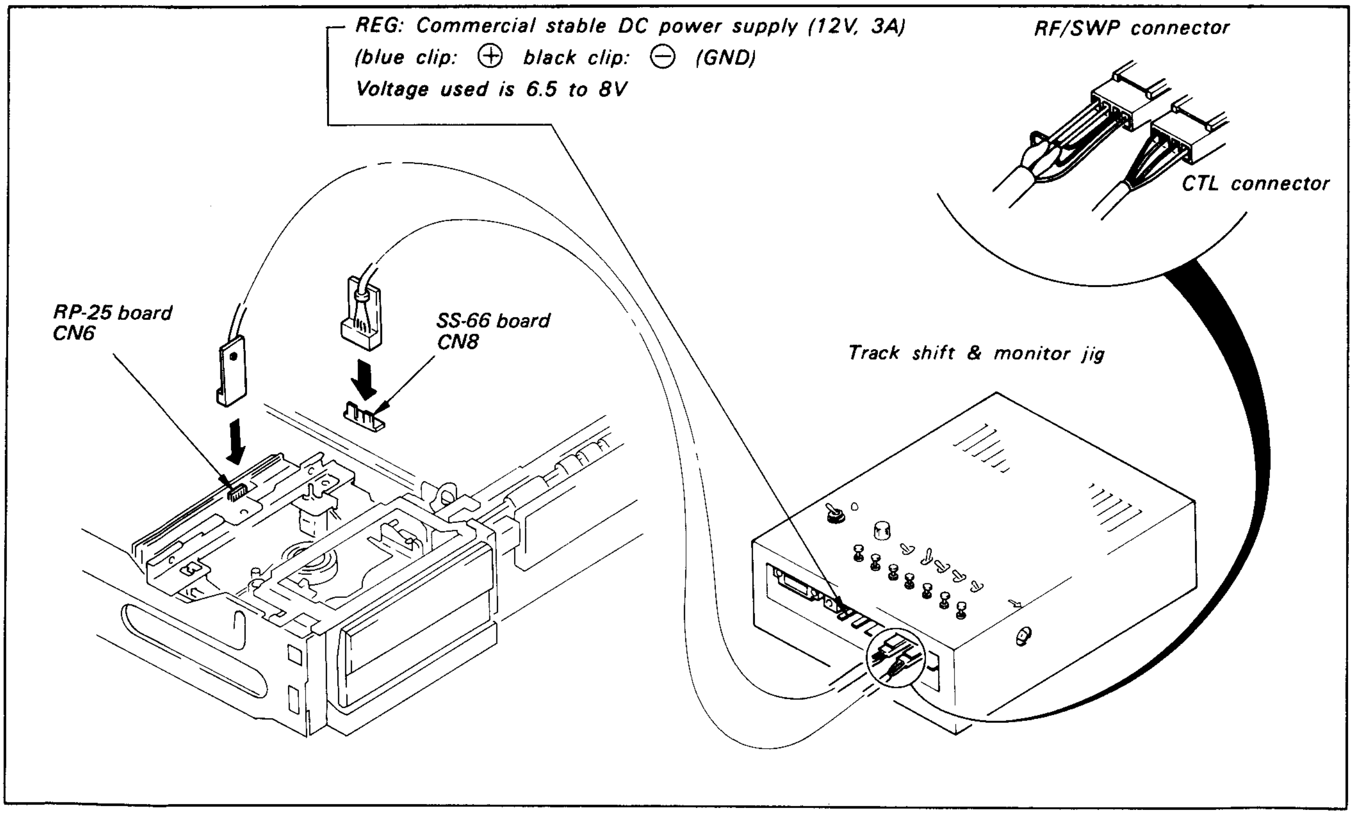

REG: Commercial stable DC power supply (12V, 3A)
(blue clip: ⊕ black clip: ⊖ (GND)
Voltage used is 6.5 to 8V
RF/SWP connector
CTL connector
RP-25 board
CN6
SS-66 board
CN8
Track shift & monitor jig

Fig. 7-72

[Power supply of track shift and monitor jig]

The track shift and monitor jig has 3 kinds of connectors as its external power supply terminals and it enables to utilize the following 3 kinds of power supplies.

Connector name	Connection of power supply
SYSTEM CONN-	Connect the improved AC adapter AC-V8E for CCD-V8E. (Regarding the improving method, see the instruction manual of the track shift and monitor jig.)
AC ADP	Connect an AC adapter AC-M100E for Beta movie.
REG	Connect a DC stabilized power supply of over 12V 3A on the market and use it with 6.5 to 8V. Be sure to connect the positive ⊕ and negative ⊖ without fail.

- Do not use more than 2 kinds of power suplies simultaneously.
- Use the connector which is attached to the track shift and monitor jig when connecting.
- Special caution should be taken because use of any power supply and voltage other than those mentioned above may cause damages.
- In the event the improved AC-V8E is used, the power supply for the circuit will be disconnected after a lapse of approximately 10 seconds when the power supply of the AC-V8E has been turned off.
- Since the power supply for the EV-A200 main unit is not carried out, the AC power supply for it should be carried out at the same time.

7-4-1. Connection with Track Shift and Monitor Jig

i) Connect the RF/SWP connector to RP-25 board CN6.
ii) Connect the CTL connector to SS-66 board CN8.

[Switch Positions]

SEL switch:
When performing track shift: ON
When not performing track shift: OFF
PATTERN switch: EV
VTR/CMR switch: } either
2.4K/Hi switch: } either
ATF ADJ switch: OFF

[Signal Output]

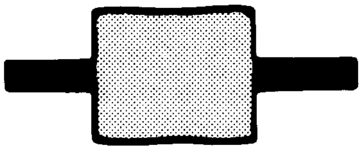
The following signals are output on each pin.

CH2 pin: CH2 RF signal
CH1 pin: CH1 RF signal
RF SWP pin: RF SWP signal

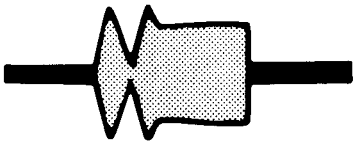
Note: When an alignment tape is used, the RF signal is or output on CH2.

7-4-2. Preparation for Adjustment

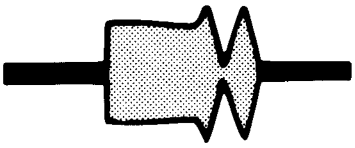
1) Perform cleaning of the tape running surface (the individual tape guides drums, capstan shafts and pinch rollers).
2) Connection of oscilloscope
   1ch: CH2 pin: CH2 RF signal
   2ch: RF SWP pin: RF SWP signal
3) Set the SEL switch of the track shift & monitor jig to OFF, then play back the alignment tape (WR5-1C) for tracking, and confirm that the RF waveform of both the entrance and exit sides become flat (Fig. ⓐ in 7-73). If the RF waveform of both sides is not flat, the adjustment should be carried out in accordance with the following.
   - * In case the RF waveform on the entrance side is not flat (Fig. ⓑ in 7-73) . . . Perform the adjustment in Item 7-4-3. Entrance Side Adjustment.
   - * In case RF waveform on the exit side is not flat (Fig. ⓒ in 7-73) . . . Perform the adjustment in Item 7-4-4. Exit Side Adjustment.



ⓐ *Normal*



ⓑ *Entrance side is defective.*



ⓒ *Exit side is defective.*

Fig. 7-73

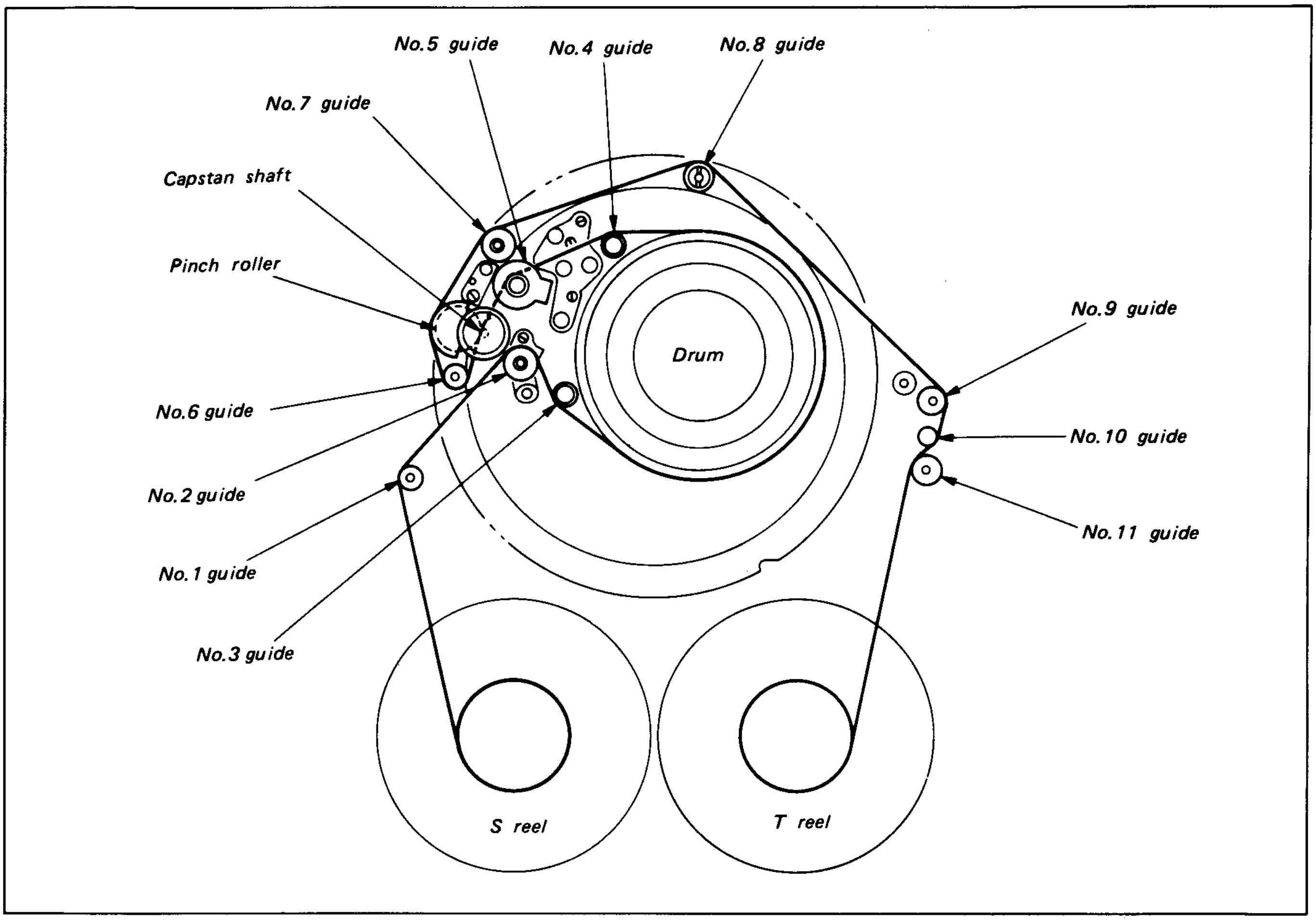

No.5 guide
No.4 guide
No.8 guide
No.7 guide
Capstan shaft
Pinch roller
No.9 guide
Drum
No.6 guide
No.10 guide
No.2 guide
No.11 guide
No.1 guide
No.3 guide
S reel
T reel

Fig. 7-74 Tape guide arrangement diagram

7-4-3. Entrance Side Adjustment

1) Play back the tracking alignment tape (WR5-1C) and loosen No.2 guide lock screw ❶, and rotate No.2 and No.3 guides counterclockwise to free tape running on the entrance side. (Fig. 7-75.)

Note: Since the space between the top and bottom flanges of No.2 guide is narrow, confirm that the tape is contacting neither top nor bottom flanges at this point. If No.2 guide is loosened excessively, the tape contacts the bottom flange and the RF waveform on the entrance side ceases to be the original free waveform.

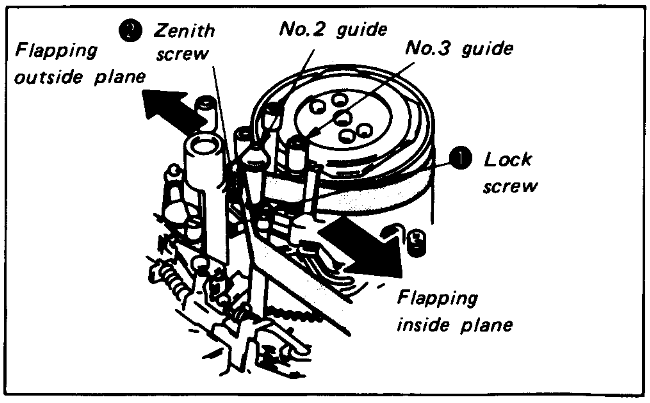

❷ Zenith screw
Flapping outside plane
No.2 guide
No.3 guide
❶ Lock screw
Flapping inside plane

Fig. 7-75

2) Confirm that the RF waveform on the entrance side has 0.5 to 3.5 peaks in this condition. If not, adjust as follows. (Fig. 7-76.)

[less than 0.5 peak]

Adjust the No.2 guide zenith screw ❷ by turning it counterclockwise 90° at a time. (Fig. 7-75.)

[more than 3.5 peak]

Adjust the height adjustment screw of No.1 guide (tension regulator assembly) by turning it counterclockwise 90° at a time. (Fig. 7-77.)

3) Slowly rotate the No.2 guide clockwise to make the entrance side waveform approximately flat. (Fig. 7-78.)

Note: Do not rotate No.2 guide excessively.

4) Set the SEL switch of the track shift & monitor jig to ON, then turn the track shift knob until the RF waveform amplitude is 2/3. (Fig. 7-79.)
5) Turn No.2 guide so that the entrance side waveform flattens slightly. (Fig. 7-80.)
6) Flatten the waveform with No.3 guide. (Fig. 7-81.)
7) Tighten No.2 lock screw ❶. (Fig. 7-75.)

Note: Be sure to perform checking in accordance with 7-4-5.

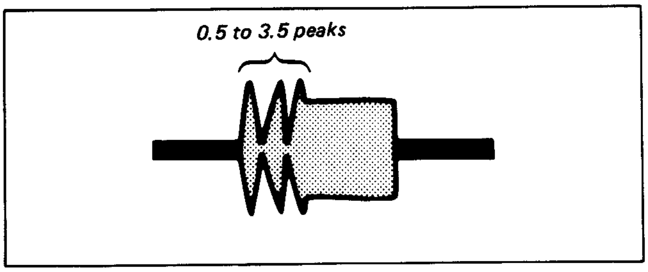

0.5 to 3.5 peaks

Fig. 7-76

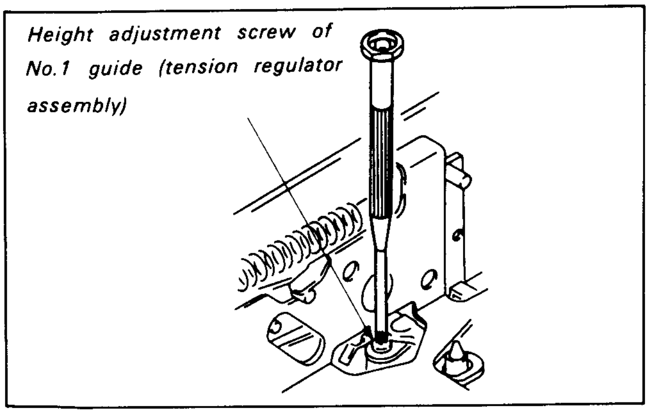

Height adjustment screw of No.1 guide (tension regulator assembly)

Fig. 7-77

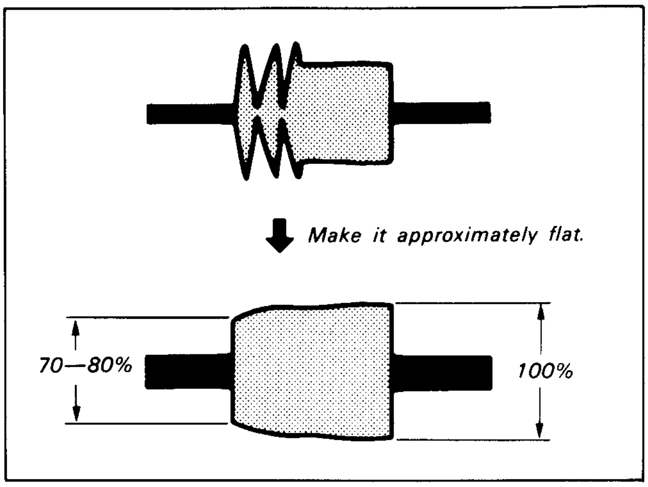

Make it approximately flat.
70—80%
100%

Fig. 7-78

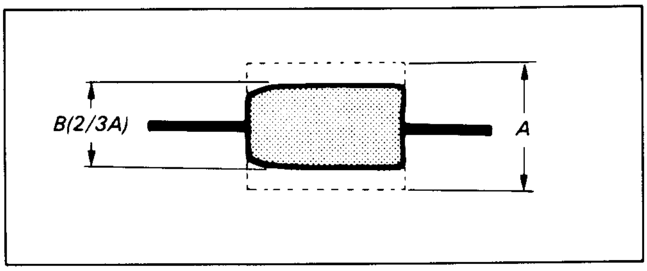


Fig. 7-79

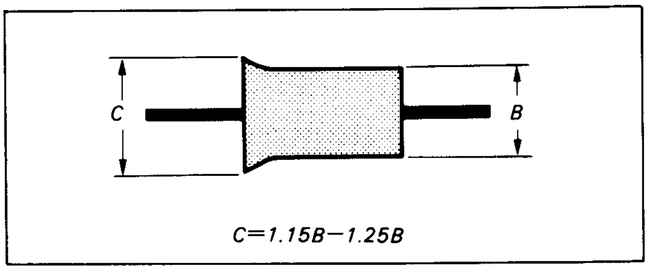

C
B
C=1.15B−1.25B

Fig. 7-80

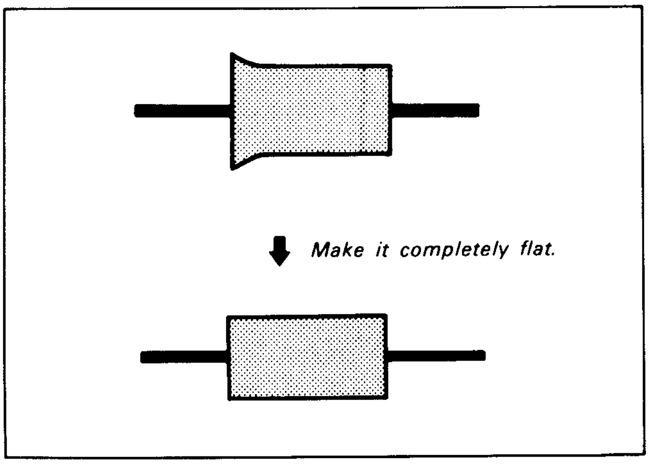

Make it completely flat.

Fig. 7-81

7-4-4. Exit Side Adjustment

1) Play back the alignment tape (WR5-1C) for tracking and rotate No.5 guide clockwise in order to make the tape running on the exit side free. (Fig. 7-82.)

Note:
- If screw lock is stuck to the No.5 guide nut, it may prevent the nut from rotating. Rotate the guide after immersing the nut thread into alcohol and to dissolve the screw lock agent.
- Check that the tape is not contacting the top and bottom of flanges of No.5 guide during free tape running.

2) Check the RF waveform on the exit side has 1.5 to 3.5 peaks. If not, readjust as follows: (Fig. 7-83.)

[If off standard]

i) Rotate the lock screw ❶ counterclockwise to loosen.
ii) Slowly rotate the zenith screw ❷ 45° at a time and wait until the RF waveform varies.
iii) Rotate the lock screw ❶ clockwise to tighten. (Fig. 7-82.)

Note:
- The waveform varies if the lock screw is tightened too strongly. Tighten moderately.
- Never rotate the azimuth screw of No.5 guide.

3) Rotate No. 5 guide counterclockwise to make the RF waveform on the exit side approximately flat. (Fig. 7-84.)

Note: The waveform reaction is slow against nut rotation. Rotate the nut after the waveform variations are stabilized.

4) Set the SEL switch of the track shift & monitor jig to ON, then turn the track shift knob until the RF waveform amplitude is 2/3. (Fig. 7-85.)
5) Turn No.5 guide so that the exit side waveform flats slightly. (Fig. 7-86.)
6) Turn No.4 guide so that waveform flat. (Fig. 7-87.)

Note: Be sure to perform checking in accordance with 7-4-5. after making the adjustment.

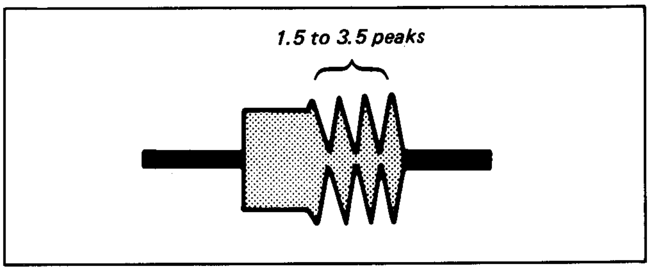

1.5 to 3.5 peaks

Fig. 7-83

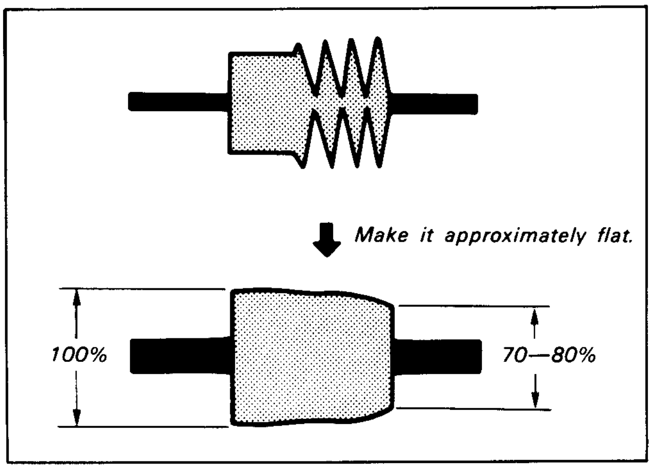

Make it approximately flat.
100%
70—80%

Fig. 7-84

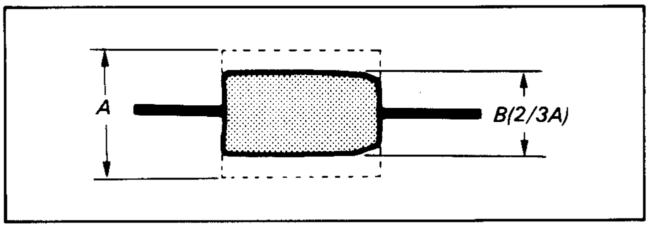


Fig. 7-85

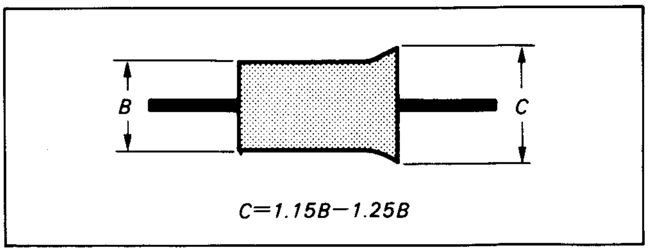

B
C
C=1.15B−1.25B

Fig. 7-86

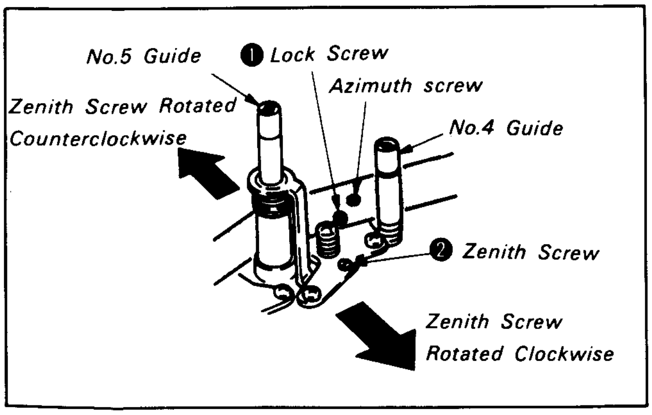

No.5 Guide
❶ Lock Screw
Azimuth screw
Zenith Screw Rotated Counterclockwise
No.4 Guide
❷ Zenith Screw
Zenith Screw Rotated Clockwise

Fig. 7-82

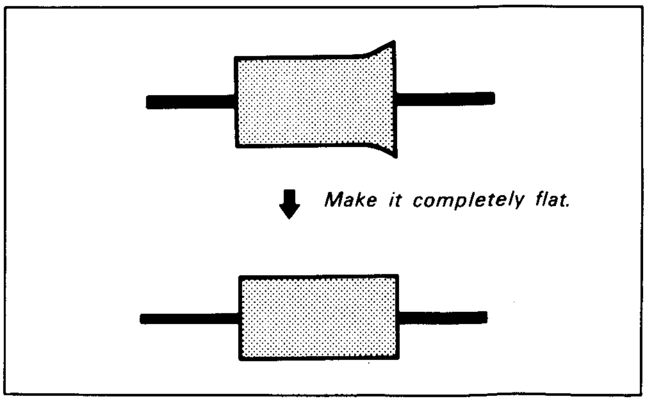

Make it completely flat.

Fig. 7-87

7-4-5. Tracking Check After Adjustment

1) Play back the alignment tape (WR5-1C) for tracking.
2) Set the SEL switch of the track shift & monitor jig to ON, and turn track shift knob until the RF waveform amplitude is 2/3. (Fig. 7-88.)

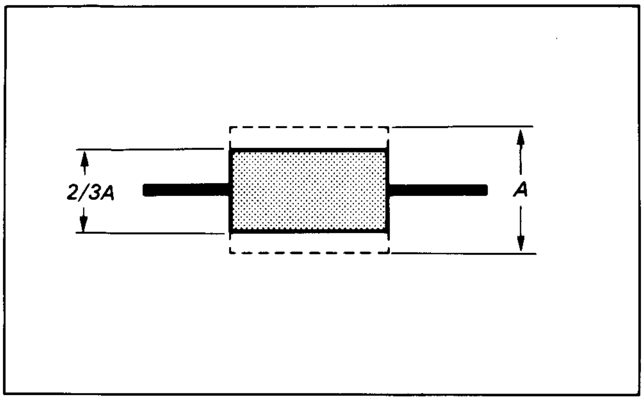


Fig. 7-88

3) Confirm that the RF waveform amplitude minimum value E min at this time is more than 80% of maximum value. (E max.) (Fig. 7-89.)

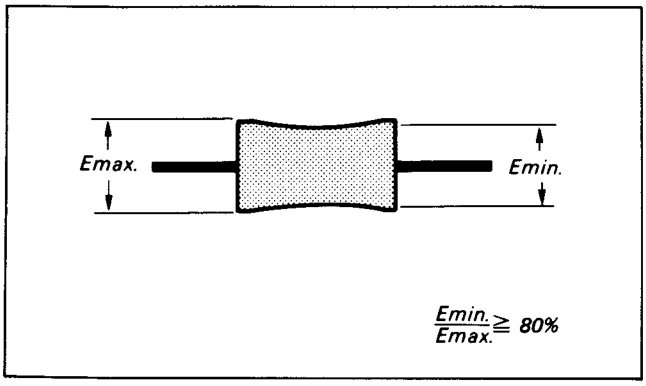

Emax.
Emin.
Emin./Emax. ≧ 80%

Fig. 7-89

4) Check that the fluctuation amount of RF waveform entrance and exit sides both is as shown in Fig. 7-90.

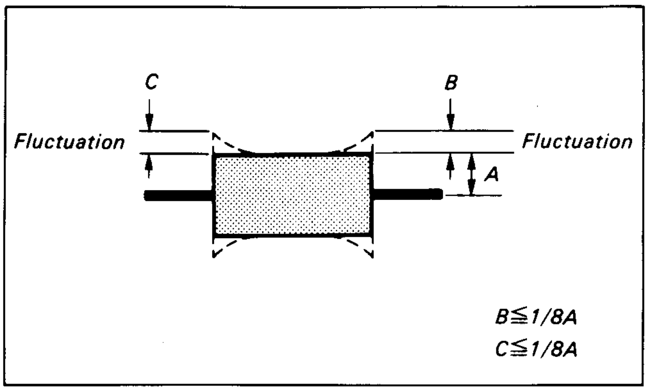

C
B
Fluctuation
Fluctuation
A
B≦1/8A
C≦1/8A

Fig. 7-90

5) Set the SEL switch of the track shift & monitor jig to OFF.
6) Set up the REV mode and confirm that the waveform noise pitches are uniform. If not, adjust as follows. (Fig. 7-91.)

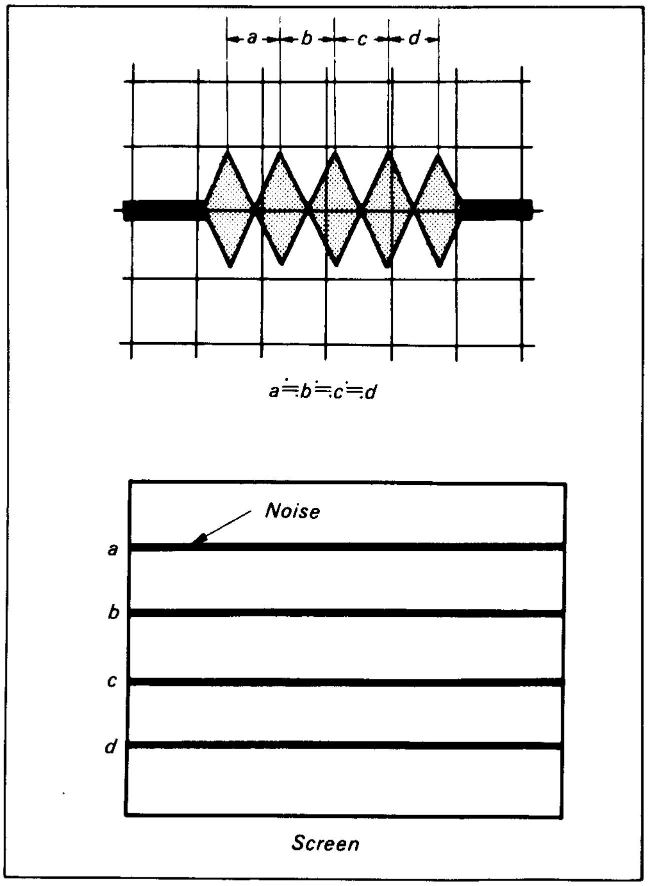

a
b
c
d
a≒b≒c≒d
Noise
a
b
c
d
Screen

Fig. 7-91

[Narrow noise pitch on entrance side (upper screen)] (Fig. 7-92.)

Confirm that the RF waveforms are flat in the PLAYBACK mode.

Waveform is not flat:

Adjust the heights of No. 2 and 3 guides as in 7-4-3. Entrance Side Adjustment.

Waveform is flat:

Check again by performing No. 1 guide height and No. 2 guide zenith adjustment according to 7-4-3. Entrance Side Adjustment.

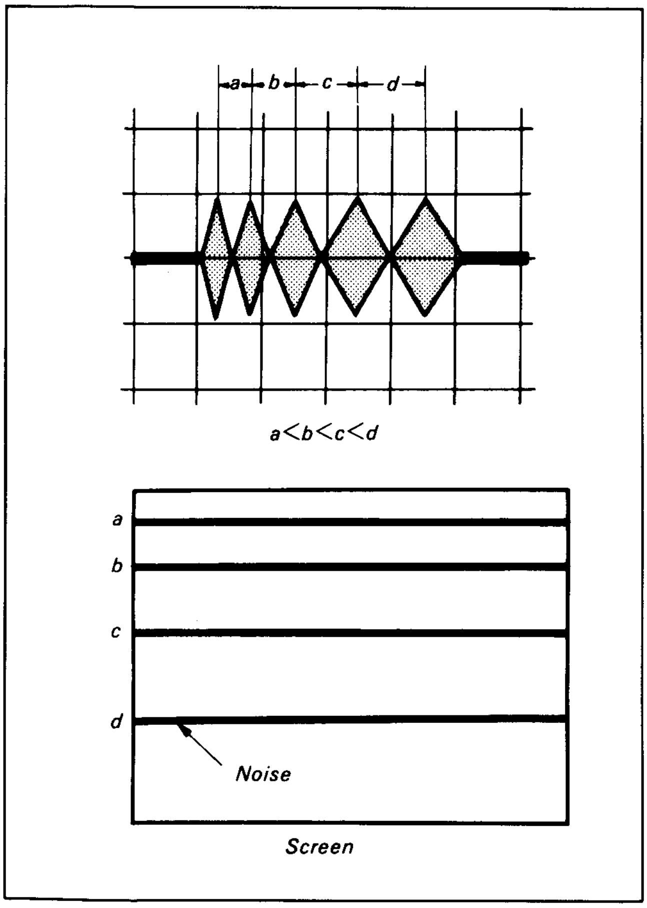


Fig. 7-92

[Narrow noise pitch on exit side (lower screen)] (Fig. 7-93.)

Set up the PLAYBACK mode and adjust No. 4 and 5 guide heights in accordance with 7-4-4. Exit Side Adjustment.

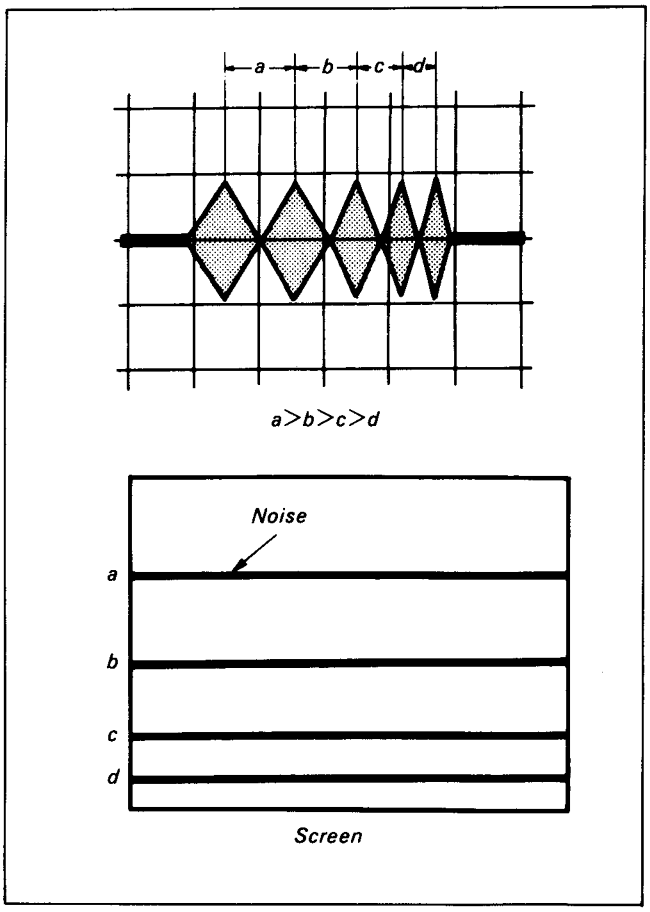


Fig. 7-93

[Wide noise pitch on exit side (lower screen)]
(Fig. 7-94.)

Set up the PLAYBACK mode and confirm that the RF waveform is flat.

Waveform is not flat:
Adjust height of No. 4 and 5 guides in accordance with 7-4-4. Exit Side Adjustment.

Waveform is flat:
Rotate the guide lower toothed wheel counterclockwise with No.6 guide lock jig (Ref. No.J-11) to loosen the toothed wheel. Rotate No.6 guide counterclockwise 45° to tighten the lower toothed wheel. Confirm the RF waveform of the REV mode again. (Fig. 7-95.)

Note: Wrinkles may be caused in Part Ⓐ between the capstan spindle and No.5 guide, if No.6 guide is raised excessively. Confirm that no wrinkles have been caused. (Fig. 7-96.)

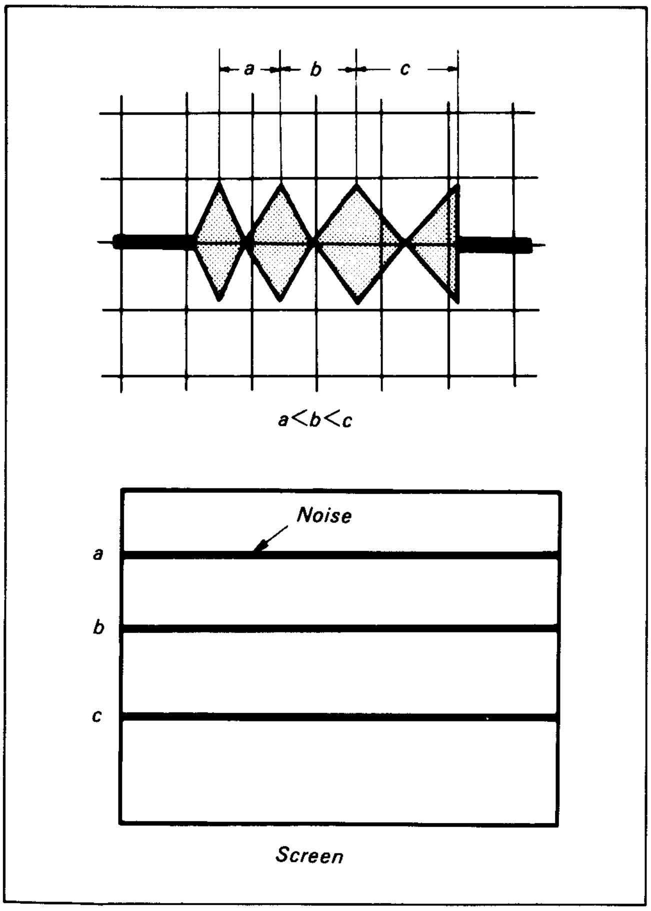

a
b
c
a<b<c
Noise
a
b
c
Screen

Fig. 7-94

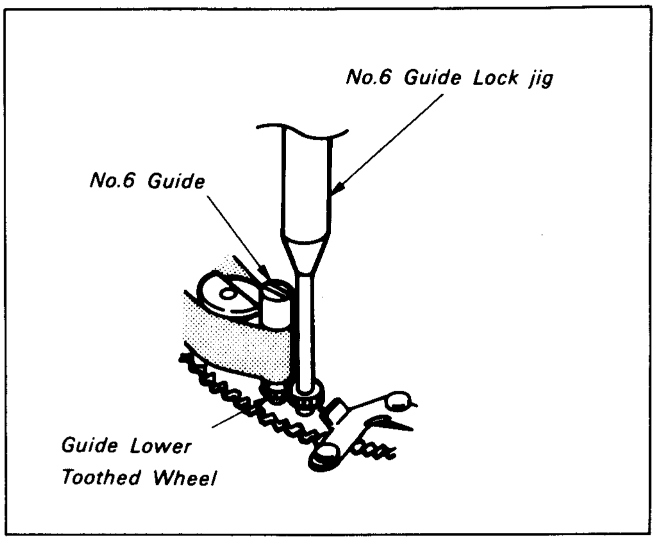

No.6 Guide Lock jig
No.6 Guide
Guide Lower
Toothed Wheel

Fig. 7-95

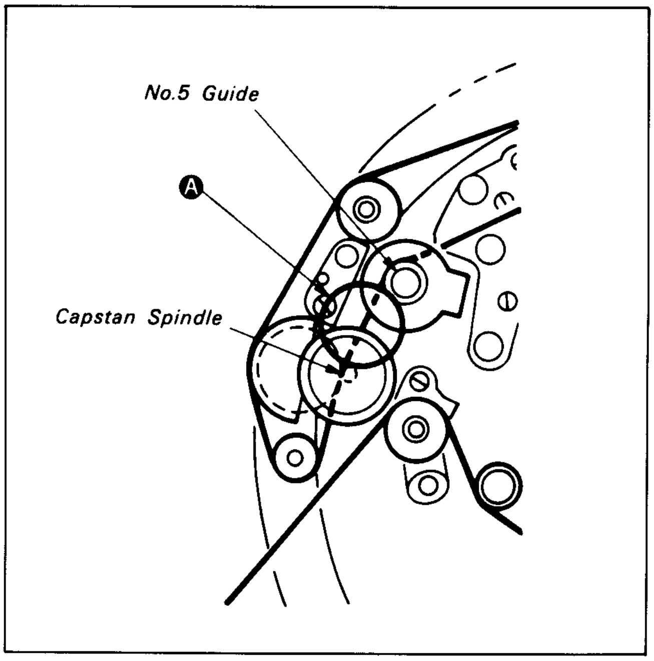

No.5 Guide
A
Capstan Spindle

Fig. 7-96

7-4-6. Rising Edge Check After Adjustment

1) Check that the RF waveform rises horizontally during playback after finishing loading, after CUE/REV, and during playing back after FF. If not, adjust as follows.

[Noise emits from the exit side (lower screen) with rising during playback after finishing loading]
(Fig. 7-97.)
Check that the FWD back tension is not too low.
If too low:
Readjust as instructed in 7-3-21. FWD Back Tension Adjustment.
If normal:
Rotate the azimuth screw of the pinch roller clockwise 15° at a time and adjust after rechecking the rising edge. (Fig. 7-96.)

[Noise emits from the exit side (lower screen) with rising during playback after REV]
(Fig. 7-97.)
Loosen the guide lower toothed wheel of No.6 guide using No.6 guide lock jig, rotate No.6 guide 90° counterclockwise to tighten the toothed wheel, then recheck the rising edge.

Note: Wrinkles may be caused in Part Ⓐ of Fig. 7-96., if No. 6 guide is raised excessively at this time, between the capstan spindle and No. 5 guide, so check that no wrinkles are caused.

[Noise emits from the exit side (lower screen) with rising during playing back after FF]
(Fig. 7-97.)
Confirm that the FWD back tension is not too low.
If too low:
Readjust as required in 7-3-21. FWD Back Tension Adjustment.
If normal:
Remote the azimuth screw of the pinch roller clockwise by 15° at a time and adjust after checking the rising edge. (Fig. 7-98.)

Note: Be sure to check play rising after finishing loading in case an adjustment is made.

7-4-7. Tape Running Check After Adjustment

In playback and REV modes, there should be no spaces and curl should be within 0.3 mm for No. 1, 2 and 5 guides at No. 1 – No. 6 guide flanges (Fig. 7 99.) Check also that there is no space or curl at No. 3, 4 and 6 guides.

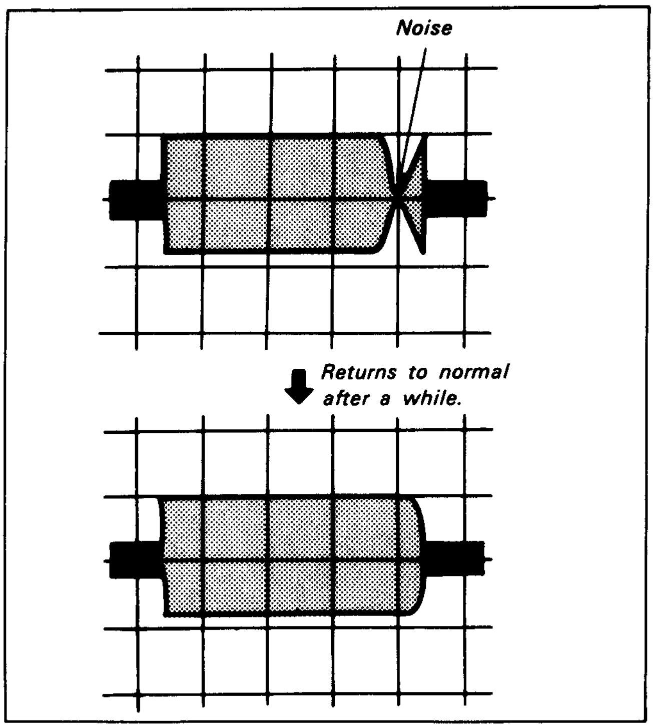

Noise
Returns to normal after a while.

Fig. 7-97

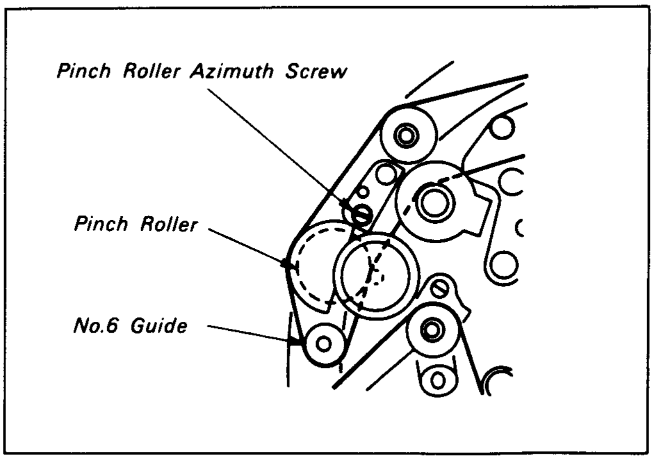

Pinch Roller Azimuth Screw
Pinch Roller
No.6 Guide

Fig. 7-98

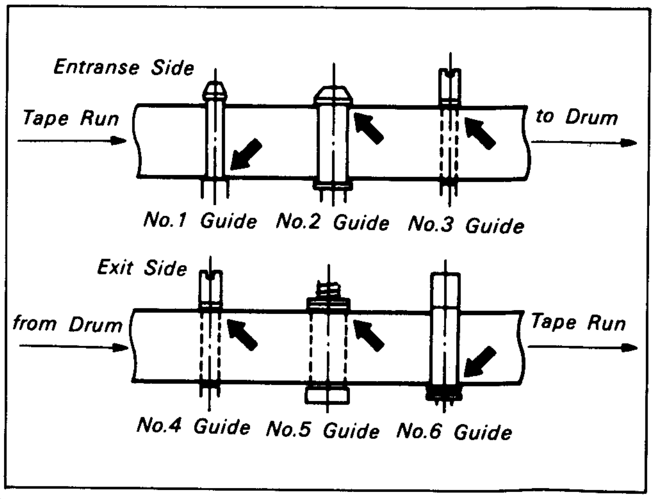

Entranse Side
Tape Run
to Drum
No.1 Guide
No.2 Guide
No.3 Guide
Exit Side
from Drum
Tape Run
No.4 Guide
No.5 Guide
No.6 Guide

Fig. 7-99

SECTION 8

ELECTRICAL ADJUSTMENT

During the adjustment, see the parts location diagram for adjustments on page 192.

The following measuring instruments are needed for electrical adjustment.

[Equipment]

1) Monitor TV
2) Oscilloscope, dual trace, band 10 MHz or wider, with delay mode (Use a 10:1 probe unless otherwise specified)
3) Frequency counter
4) Pattern generator
5) Digital voltmeter
6) Audio generator
7) Audio level meter
8) Audio distortion meter
9) Audio attenuator
10) Alignment tapes

    Tracking adjustment (WR5-1C) Parts code: 8-967-995-06

    Video frequency response adjustment (WR5-2C) Parts code: 8-967-995-16

    Operation check (WR5-3CL) Parts code: 8-967-995-36

    Operation check (WR5-3CSP) Parts code: 8-967-995-27

[Equipment Connection]

Unless otherwise specified, adjustment is made by connecting the measuring instruments as shown below.

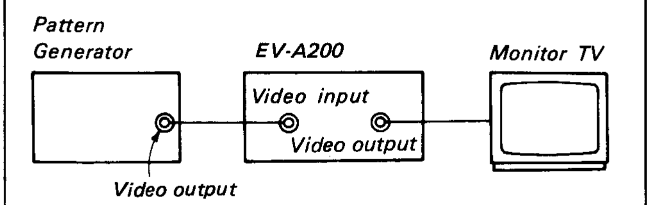

Pattern Generator
EV-A200
Monitor TV
Video input
Video output
Video output

Fig. 8-1

Setting up during adjustment

Video signals output by a pattern generator are used as adjustment signals when making the electrical adjustments, and these video output signals should be within the required standard. Connect an oscilloscope to Pin ⑳ of CN006 (VIDEO IN) on the VI-33 Board. Check tha the amplitudes of video signal SYNC signals, picture portions, and burst signals are flat at approximately 0.3, 0.7, and 0.3 V, respectively, and that the level ratio of the burst signal and "red" signal is 0.30:0.66. Fig. 8-2. shows video signals (colourbars) used in making the electrical adjustment.

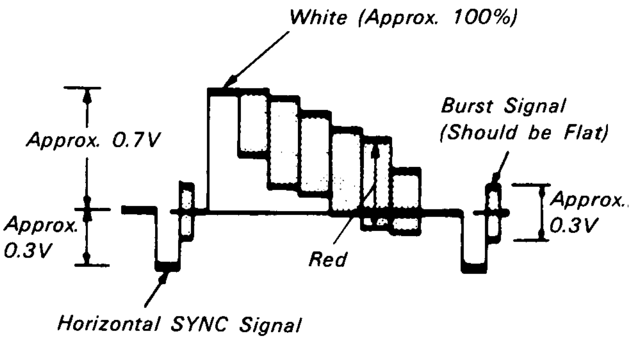
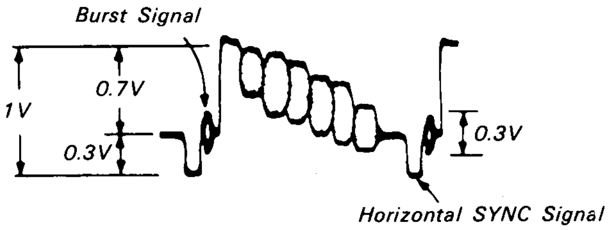
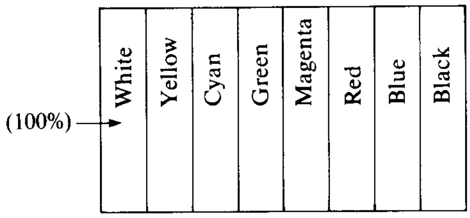

White (Approx. 100%)
Burst Signal (Should be Flat)
Approx. 0.7V
Approx. 0.3V
Approx. 0.3V
Red
Horizontal SYNC Signal

Fig. 8-2 Pattern Generator Colour-bar Signals

[Alignment tape]

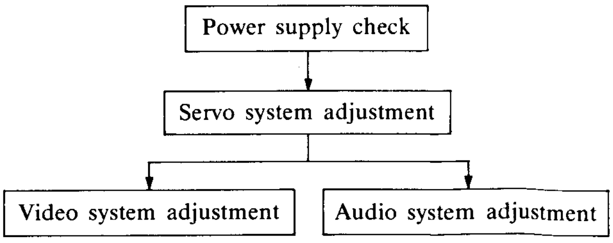
Tape	Content	Use
Tracking (WR5-1C)	1. Recording area: PCM — video 2. Recording content: CH2: 1 MHz linearity adjustment signal (CH1: 9 MHz)	Drum linearity adjustment
Video Frequency Response (WR5-2C)	1. Recording area: Video 2. Recording content: RF sweep 0 to 10 MHz 3. Marker: 1, 3.58, 5.5 and 7 MHz	Grequency response adjustment
Operation Check SP mode WR5-3CSP LP mode (WR5-3CL)	1. Recording area: Video 2. Recording content: ■ Video track • Video signals Colour bars 10 sec, Monoscope 8 sec } Iterative (Colour bars)  Burst Signal 0.7V 1V 0.3V 0.3V Horizontal SYNC Signal  (100%) White Yellow Cyan Green Magenta Red Blue Black • Audio signals (AFM) 400 Hz 60% modulation ■ PCM track (WR5-3CSP only) • Audio signals (PCM) 1kHz 0dBs 10sec 20Hz −6dBs 2sec 400Hz −6dBs 4sec 14kHz −0.7dBs 2sec } Iterative	Operation check

Input/output level and impedance of EUROCONNECTOR

Video input (Pin ⑳)
Input signals: 1 Vp-p, 75Ω unbalanced, sync negative
Video output (Pin⑲)
Output signals: 1 Vp-p, 75Ω unbalanced, sync negative
Audio input (Pin ⑥)
Input level: −6.3 dBs (0 dBs = 0.775 Vrms)
Input impedance: 10 kΩ or higher
Audio output (Pins ① and ③)
Regulated output: −6.3 dBs
Load impedance: 1 kΩ or lower

Adjustment Procedure

Adjust in the following sequence:

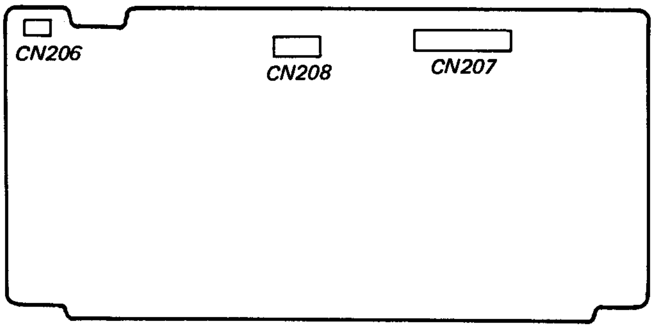

Power supply check
Servo system adjustment
Video system adjustment
Audio system adjustment

8-1. POWER SUPPLY CHECK

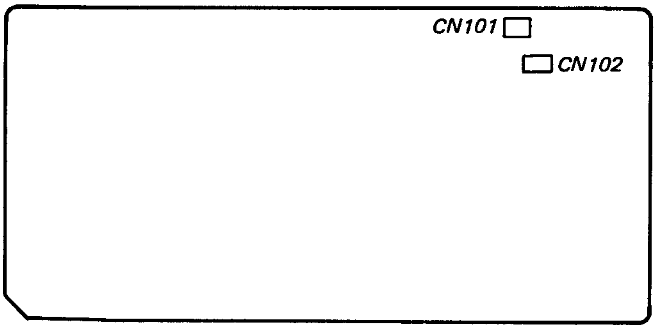
Measure in E-E mode.

1) REG 12 V check (PS-125 board)
   Pin ⑧ of CN207 shall be 12.0 ±0.1 V dc
2) REG 5 V check (PS-125 board)
   Pin ① of CN206 shall be $5.05^{+0.15}_{-0.1}$ V dc
3) UN SWD 5 V check (PS-125 board)
   Pin ⑥ of CN207 shall be 5.3 ±0.3 V dc
4) BACK UP 5 V check (PS-125 board)
   Pin ⑦ of CN207 shall be 5.3 ±0.3 V dc
5) DRIVE 5 V check (PS-125 board)
   Pin ② of CN207 shall be 5.3 ±0.3 V dc
6) DRIVE 9 V check (PS-125 board)
   Pin ④ of CN208 shall be 8.7 ±0.4 V dc
7) AC 30 V check (PS-124 board)
   Pin ① of CN101 shall be 36.4 ±3 V ac
8) AC 4.2 V check (PS-124 board)
   Voltage between Pin ② of CN102 and Pin ③ of CN102 shall be 4.2 ±0.3 Vrms.

[PS-125 BOARD] **– Conductor Side –**



[PS-124 BOARD] **– Conductor Side –**



8-2. SERVO SYSTEM ADJUSTMENT

8-2-1. Drum Bias Check (SS-66 Board)

Mode	Record (SP mode)
Signal	Optional
Measurement point	IC202 Pin ⑫
Measurement Equipment	Digital voltmeter
Specified Value	2.0 ±1.0 V dc

[Checking procedure]

1) Check to see that IC202 pin ⑫ DC voltage is 2.0 ±1.0 V.

8-2-2. Drum Phase Lock Check (SS-66 Board)

Mode	Record (SP mode)
Signal	Optional
Measurement Point	CH1: TP201 (IC202 pin ⑧) CH2: TP218 (IC202 pin ⑱)
Measurement Equipment	Oscilloscope
Specified Value	556 ±50 µsec

[Checking procedure]

1) Make sure that it is within the range shown in Fig. 8-5.

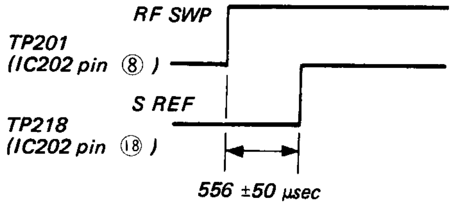


Fig. 8-5

8-2-3. Capstan DC Bias Adjustment (SS-66 Board)

Within the brackets [ ] indicates LP mode adjustment elements.

Mode	Playback
Signal	Optional
Measurement Point	TP204 (IC202 pin ㉓ : CAP FG)
Measurement Equipment	Frequency counter
Adjustment Element	RV204 [RV203]
Specified Value	1341 ±1 Hz [671 ±1 Hz]

[Preparation]

1) Connect a jumper lead between base of TP203 (IC206 pin ㉖) and GND.
2) Turn off the power switch.
3) Turn on the power switch.

[Adjustment procedure]

1) Set to playback mode, and select to "SP" ["LP"] by pressing SP/LP selection button.
2) Adjust to 1341 ±1 Hz [671 ±1 Hz] with RV204 [RV 203].

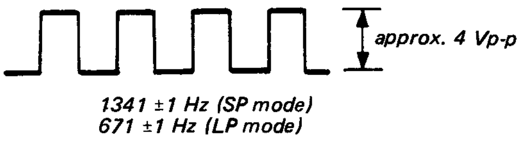

approx. 4 Vp-p
1341 ±1 Hz (SP mode)
671 ±1 Hz (LP mode)

Fig. 8-6

8-2-4. Switching Position Adjustment (SS-66 and VI-33 Boards)

Mode	Playback
Signal	Alignment tape, (WR5-3CSP) colour-bar section
Measurement Point	CH1: VI-33 board TP002 (VIDEO OUT) CH2: SS-66 board TP201 (IC202 pin ⑧)
Measurement Equipment	Oscilloscope
Adjustment Element	SS-66 board RV201
Specified Value	6.5 ±0.3 H (416 ±20 μsec)

[Adjustment procedure]

1) Adjust to 6.5 ±0.3 H (416 ±20 μsec) with RV201.

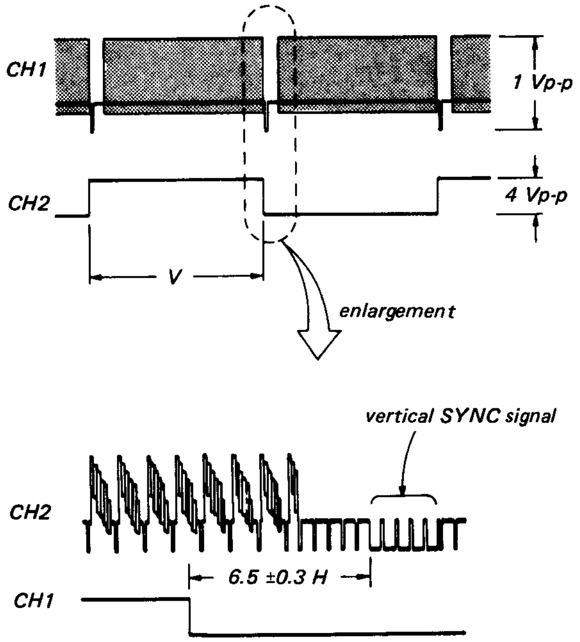

CH1
1 Vp-p
CH2
4 Vp-p
V
enlargement
vertical SYNC signal
CH2
6.5 ±0.3 H
CH1

Fig. 8-7

8-2-5. ATF BPF Balance Adjustment (SS-66 Board)

Mode	Playback
Signal	} See Fig. 8-8
Measurement Point	
Measuring Equipment	Oscilloscope audio generator and frequency counter
Adjusting Element	RV202
Specified Value	Be sure that the signal level of 16 kHz (pin ⑪ of IC206) is equivalent to that of 47 kHz (pin ⑫ of IC206).

[Connection]

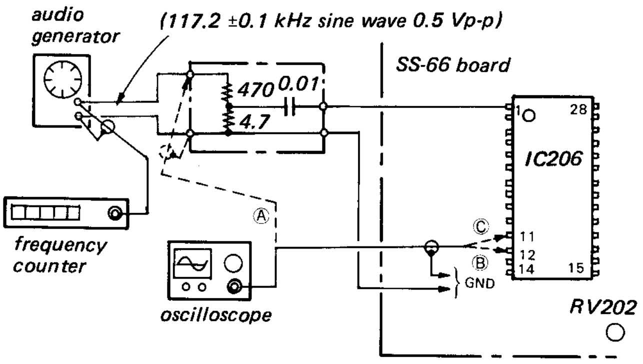

audio generator
(117.2 ±0.1 kHz sine wave 0.5 Vp-p)
SS-66 board
470
0.01
4.7
1
28
IC206
Ⓐ
Ⓒ
11
12
Ⓑ
14
15
GND
frequency counter
oscilloscope
RV202

Fig. 8-8

[Adjustment procedure]

1) Check the output level of the audio generator with an oscilloscope and adjust the output level so that the output level of the sine wave becomes approximately 0.5 Vp-p. (Fig. 8-8 Ⓐ)
2) Adjust the oscillation frequency of the audio generator so that the reading of the frequency counter becomes 117.2 ±0.1 kHz.
3) Play back an arbitrary tape.
4) Connect an oscilloscope to Pin ⑫ of IC206 and read the signal level of 47 kHz (approx. 2 Vp-p). (Fig. 8-8 Ⓑ)
5) Connect an oscilloscope to Pin ⑪ of IC206. (Fig. 8-8 Ⓒ)
6) Adjust with RV202 so that the signal level of 16 kHz becomes equivalent to that of 47 kHz.

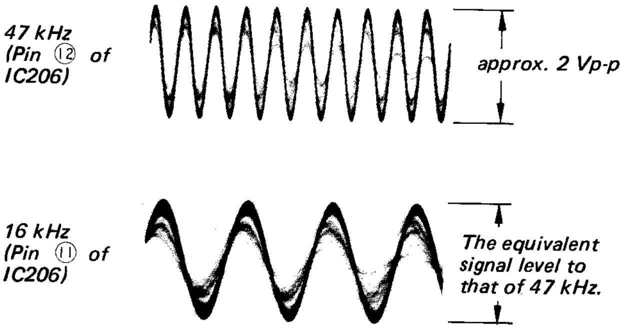

47 kHz (Pin ⑫ of IC206)
approx. 2 Vp-p
16 kHz (Pin ⑪ of IC206)
The equivalent signal level to that of 47 kHz.

Fig. 8-9

8-2-6. Playback Pause Stop Position Adjustment (SS-66 Board)

Mode	Playback pause
Signal	Self-recorded tape (LP mode)
Adjustment Element	RV001

[Adjustment procedure]

1) Set to the playback pause mode in LP mode and adjust with RV001 so that the noise on the monitor screen becomes decrease. (Adjust so that the noise become less than 1/4 section on the upper and lower screen.) After the adjustment, repeat the Playback mode (for 7 to 8 seconds) → Playback pause mode 3 times and confirm that the noise on the screen is less than 1/4 both on the upper and lower screen.
2) Set to the playback pause mode in SP mode, and confirm that the screen picture becomes standstill.

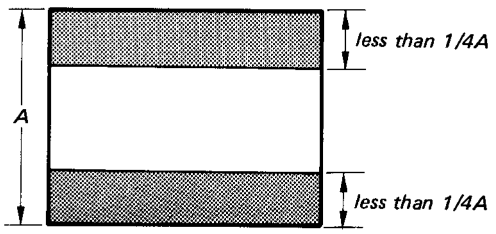

less than 1/4A
A
less than 1/4A

Fig. 8-10

8-3. VIDEO SYSTEM ADJUSTMENT

As a general rule, perform video adjustments in the order given below.
The colour video signal supplied from a pattern generator is used as the recording mode video system adjustment video input signal. Confirm that the colour burst signal and sync signal are within the specifications given in Fig. 8-2, set-up for adjustment.

[Adjustment order]

1) Playback Frequency Response Adjustment
2) Flying Erase Check
3) X'tal Oscillator fo Adjustment
4) SYNC AGC Pre-Adjustment
5) Y/C Separation Adjustment
6) Y Comb AGC Adjustment
7) SYNC AGC Adjustment
8) VIDEO OUT Level Adjustment
9) PB Y Level Adjustment
10) JOG Colour Level Adjustment
11) Y FM Carrier Frequency Adjustment
12) REC Y Level Adjustment
13) Y FM Deviation Adjustment
14) White Clip Adjustment
15) 375 fH VCO Adjustment
16) Chroma Emphasis fo Adjustment
17) Carrier Balance Adjustment
18) REC C Level Adjustment
19) REC Y ATF Level Adjustment
20) REC Y Recording Current Adjustment

8-3-1. Playback Frequency Response of CH1 and CH2 Adjustment (RP-25 Board)

Within the brackets [ ] indicates CH2 adjustment element.

Mode	Playback
Signal	Alignment tape, (WR5-2C)
Measurement Point	CN006 pin ③ [CN006 pin ②]
Measurement Equipment	Oscilloscope
Adjustment Element	RV002 [RV001]
Specified Value	$\frac{\text{3.58 MHz level}}{\text{5.5 MHz level}} = \frac{3}{2}$ $\left[\frac{\text{3.58 MHz level}}{\text{5.5 MHz level}} = \frac{4}{3}\right]$

[Preparation]

External trigger: CN006 pin ① [CN006 pin ①]
Trigger slope: + [–]

[Adjustment procedure]

1) Adjust the ratio between the 3.58 MHz and 5.5 MHz levels to 3:2 [4:3] with RV002 [RV001].

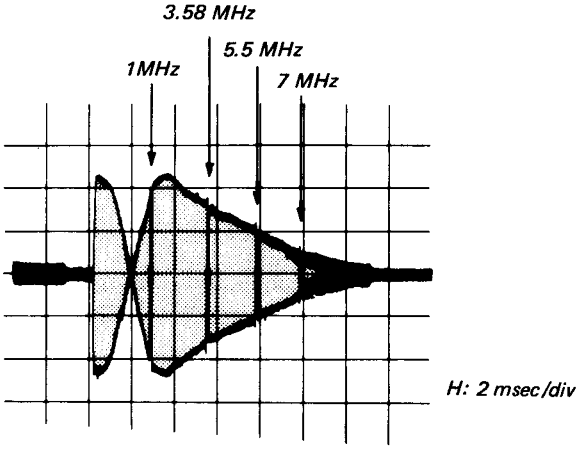


Fig. 8-11

8-3-2. Flying Erase Check (RP-25 Board)

Mode	Record
Signal	Optional
Measurement Point	CN005 pin ①
Measurement Equipment	Oscilloscope
Specified Value	V: approx. 9 Vp-p t : 0.118 ±0.007 µsec

[Checking procedure]

1) The oscillation period should be 0.118 ±0.007 µsec (8.5 ±0.5 MHz) or over and level should be approx. 9 Vp-p.

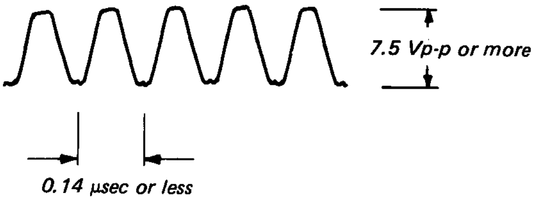


Fig. 8-12

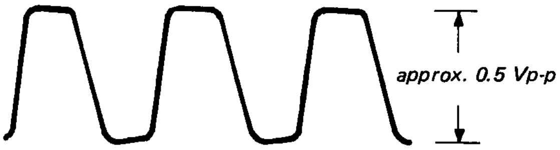
8-3-3. X'tal Oscillator fo Adjustment (VI-33 Board)

Mode	Playback
Signal	Alignment tape (WR5-3CSP)
Measurement Point	IC003 pin ⑧
Measurement Equipment	Frequency counter
Adjustment Element	CV200
Specified Value	4433619 ±50 Hz

Note: Connect the frequency counter through a buffer with high impedance (approx. 10 MΩ) and low capacity (less than 10 pF).

[Adjustment procedure]

1) Adjust to 4433619 ±50 Hz with CV200.



(4433619 ±50 Hz)

Fig. 8-13

8-3-4. SYNC AGC Pre-Adjustment (VI-33 Board)

Mode	E-E
Signal	Colour-bar
Measurement Point	IC001 pin ⑫
Measurement Equipment	Oscilloscope or digital volt-meter
Adjustment Element	RV001
Specified Value	2.5 ±0.1 Vdc

[Adjustment procedure]

1) Adjust to 2.5 ±0.1 V dc with RV001.

8-3-5. Y/C Separation Adjustment (VI-33 Board)

Mode	E-E
Signal	Colour-bar
Measurement Point	IC002 pin ⑳
Measurement Equipment	Oscilloscope
Adjustment Element	RV100 and LV100
Specified Value	Residual chroma components: Minimum

Note: Connect the jumper wire between Base of Q107 and GND.

[Adjustment procedure]

1) Adjust RV100 and LV100 alternately to minimize residual chroma components.

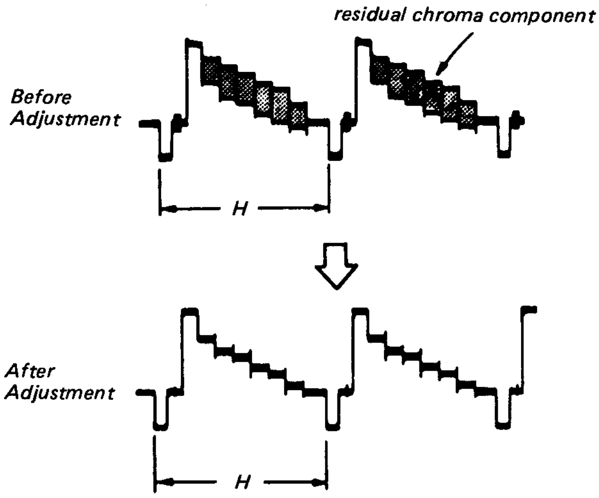


Fig. 8-14

8-3-6. Y Comb AGC Adjustment (VI-33 Board)

Mode	E-E
Signal	Colour-bar
Measurement Point	IC002 pin ③
Measurement Equipment	Oscilloscope
Adjustment Element	RV101
Specified Value	Amplitude: Minimum

Note: Connect a 22 kΩ resistor serially between IC002 pin ③ and 10:1 probe.

[Adjustment procedure]

1) Minimize the amplitude with RV101.

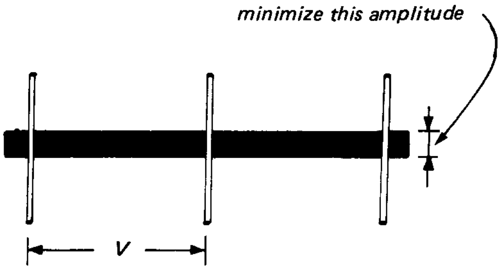


Fig. 8-15

8-3-7. SYNC AGC Adjustment (VI-33 Board)

Mode	E-E
Signal	Colour-bar
Measurement Point	Emitter of Q007
Measurement Equipment	Oscilloscope
Adjustment Element	RV001
Specified Value	0.5 ±0.02 Vp-p

Note: VIDEO LINE OUT pin EUROCONNECTOR CN006 ⑲ should be terminated with 75 Ω.

[Adjustment procedure]

1) Adjust to 0.50 ±0.05 Vp-p with RV001.

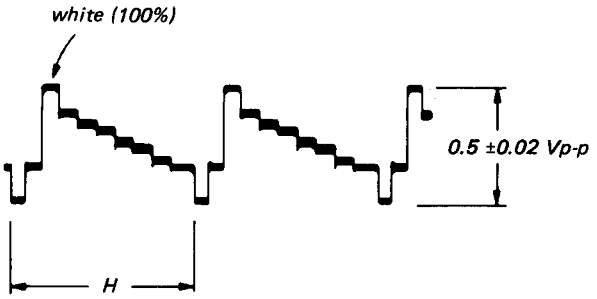


Fig. 8-16

8-3-8. VIDEO OUT Level Adjustment (VI-33 Board)

Mode	E-E
Signal	Colour-bar
Measurement Point	CN006 pin ⑲
Measurement Equipment	Oscilloscope
Adjustment Element	RV002
Specified Value	1.00 ±0.02 Vp-p

Note: Pin ⑲ of CN006 (VIDEO LINE OUT) should be terminated with 75 Ω.

[Adjustment procedure]

1) Adjust to 1.00 ±0.02 Vp-p with RV002.

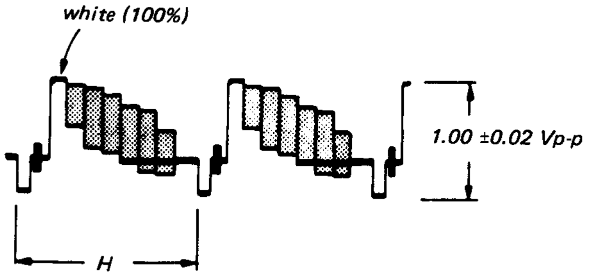


Fig. 8-17

8-3-9. PB Y Level Adjustment (VI-33 Board)

Mode	Playback
Signal	Alignment tape, (WR5-3CSP) colour-bar section
Measurement Point	CN006 pin ⑲
Measurement Equipment	Oscilloscope
Adjustment Element	RV006
Specified Valuve	1.00 ±0.02 Vp-p

Note: Pin ⑲ of CN006 (VIDEO LINE OUT) should be terminated with 75 Ω.

[Adjustment procedure]

1) Adjust to 1.00 ±0.02 Vp-p with RV006.

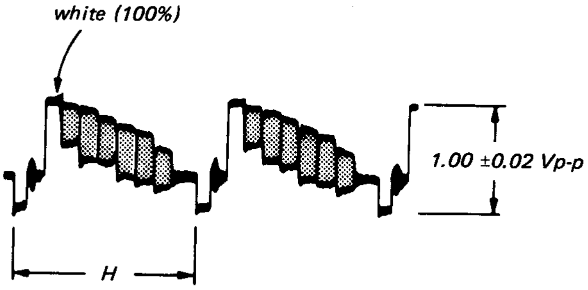


Fig. 8-18

8-3-10. JOG Colour Level Adjustment (VI-33 board)

Mode	Playback
Signal	Alignment tape colour-bar section (WR5-3CSP)
Measurement Point	IC006 pin ㉒
Measurement Equipment	Oscilloscope
Adjustment Element	RV103
Specified Value	500 ±25 mVp-p

[Adjustment procedure]

1) Adjust to 500 ±25 mVp-p with RV103.

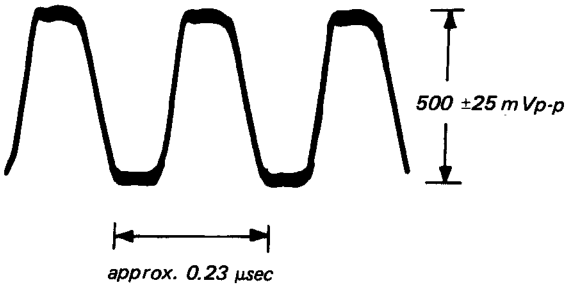


Fig. 8-19

8-3-11. Y FM Carrier Frequency Adjustment (VI-33 Board)

Mode	E-E
Signal	None
Measurement Point	TP200 (CN003 pin ⑥)
Measurement Equipment	Frequency counter
Adjustment Element	RV003
Specified Value	4.20 ±0.05 MHz

[Adjustment procedure]

1) Adjust to 4.20 ±0.05 MHz with RV003.

8-3-12. REC Y Level Adjustment (VI-33 Board)

Mode	E-E
Signal	None
Measurement Point	TP200
Measurement Equipment	Oscilloscope
Adjustment Element	RV203
Specified Value	0.46 ±0.02 Vp-p

[Adjustment procedure]

1) Adjust to 0.46 ±0.02 Vp-p with RV203.

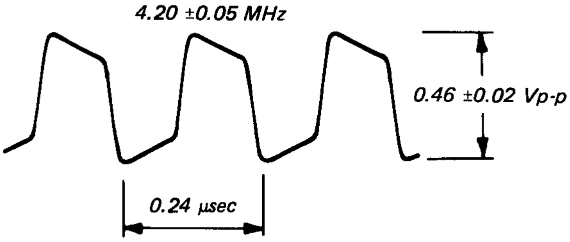


Fig. 8-20

8-3-13. Y FM Deviation Adjustment (VI-33 Board)

Adjustments of "VIDEO OUT Level", "PB Y Level", "Y FM Carrier Frequency" should have been completed.

Mode	Self-recording and playback
Signal	Colour-bar
Measurement Point	CN006 pin ⑲
Measurement Equipment	Oscilloscope
Adjustment Element	RV005
Specified Value	1.00 ±0.05 Vp-p

Note: Pin ⑲ of CN006 (VIDEO LINE OUT) should be terminated with 75 Ω.

[Adjustment procedure]

1) Record colour-bar signals.
2) Play back recorded portions.
3) Check the playback output level.
   Standard: 1.00 ±0.05 Vp-p
4) Rotate RV005 as follows and repeat Steps 1) through 3) when the value does not satisfy the standard.

	RV005 rotation direction seen from solder side
Larger than standard value	Counterclockwise (↺)
Smaller than standard value	Clockwise (↻)

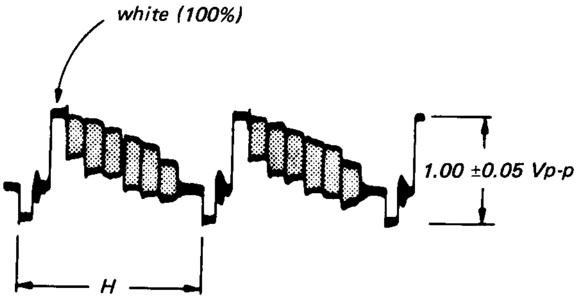


Fig. 8-21

8-3-14. White Clip Adjustment (VI-33 Board)

Mode	E-E
Signal	Colour-bar
Measurement Point	IC001 pin ⑱
Measurement Equipment	Oscilloscope
Adjustment Element	RV004
Specified Value	$\frac{\text{the peak level of white (100\%)}}{\text{the center level of white (100\%)}} \times 100$ = 225%

[Adjustment procedure]

1) Adjust to peak of white (100%) portion to 225 ±12.5% with RV004.

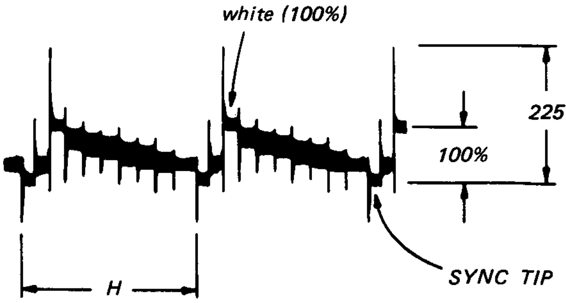


Fig. 8-22

8-3-15. 375 f_H VCO Adjustment (VI-33 Board)

Mode	E-E
Signal	Colour-bar
Measurement Point	IC003 pin ⑳
Measurement Equipment	Digital voltmeter
Adjustment Element	RV206
Specified Value	3.00 ±0.05 V dc

[Adjustment procedure]

1) Adjust to 3.00 ±0.05 V dc with RV206.

8-3-16. Chroma Emphasis fo Adjustment (VI-33 Board)

Mode	E-E
Signal	Colour-bar
Measurement Point	IC004 pin ⑧
Measurement Equipment	Oscilloscope
Adjustment Element	FL200
Specified Value	The amplitude of flat portions: Minimum (less than 60 mV)

[Preparation]

1) Connect the following two positions with 47 kΩ resistors.
   - IC003 pin ㊶ – IC003 pin ㉓ (REG 5 V)
   - IC003 pin ㊶ – IC003 pin ④ (GND)

[Adjustment procedure]

1) Minimize the amplitude of the flat protions of chroma signals with FL200.

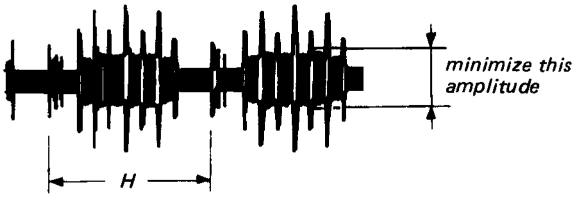


Fig. 8-23

8-3-17. Carrier Balance Adjustment (VI-33 Board)

Mode	Playback
Signal	Alignment tape colour-bar section
Measurement Point	IC003 pin ㉜
Measurement Equipment	Oscilloscope
Adjustment Element	RV202
Specified Value	The 5.17 MHz component: Minimum

[Adjustment procedure]

1) Minimize the 5.17 MHz component with RV202.

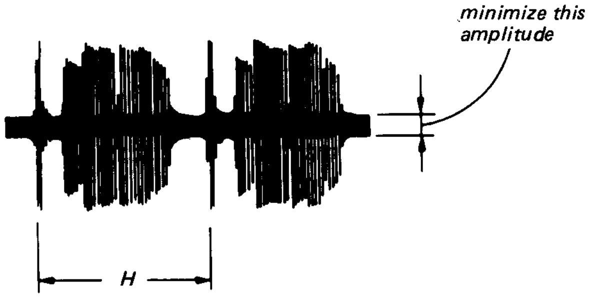


Fig. 8-24

8-3-18. REC C Level Adjustment (VI-33 Board)

Mode	E-E
Signal	Colour-bar
Measurement Point	TP-200 (CN003 pin ⑥)
Measurement Equipment	Oscilloscope
Adjustment Element	RV201
Specified Value	84 ±9 mVp-p

Note: Tape: MP type (W010 pin ③ should be 0 V dc)

[Preparation]

1) Connect the following three points with jumper leads.
   - Q008 emitter (REC Y) – GND
   - Q212 base (REC AFM) – GND
   - IC007 pin ① (PILOT IN) – GND

[Adjustment procedure]

1) Adjust red level to 84 ±9 mVp-p with RV201.

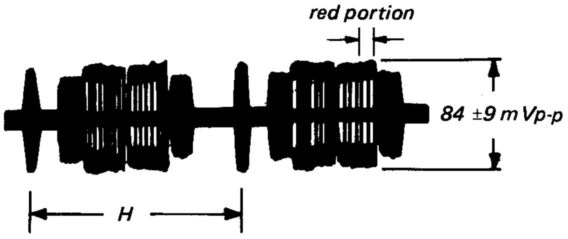


Fig. 8-25

8-3-19. REC Y ATF Level Adjustment (VI-33 Board)

Mode	E-E
Signal	Colour-bar
Measurement Point	TP-200 (CN003 pin ⑥)
Measurement Equipment	Oscilloscope
Adjustment Element	RV205
Specified Value	17 ±2 mVp-p

Note: Tape: MP type (W010 pin ③ should be 0 V dc)
Oscilloscope: If pin ⑥ of CN003 (REC Y/C AFM) signal level is too small to read easily, do not use a 10:1 probe, but connect directly through a 100 Ω resistor as shown in the diagram below.

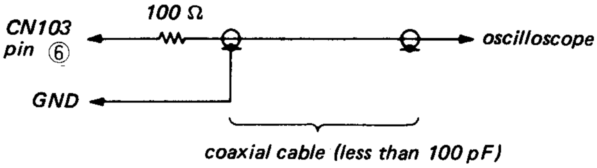


Fig. 8-26

Connection: Connect the following three points with jumpers:
Q008 emitter (REC Y) – GND
Q200 base (REC C) – GND
Q212 base (REC AFM) – GND

[Adjustment procedure]

1) Adjustment to 17 ±2 mVp-p with RV205.

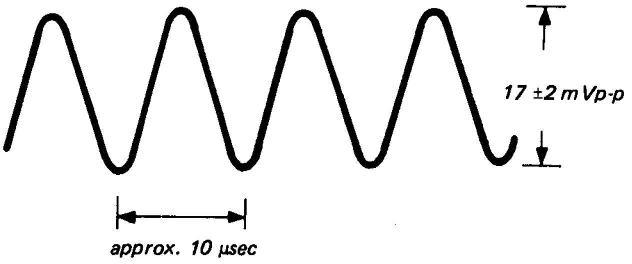


Fig. 8-27

8-3-20. REC Y Recording Current Adjustment (RP-25 Board)

Mode	Record
Signal	None
Measurement Point	RP-25 board IC001 pin ㊲
Measurement Equipment	Oscilloscope
Adjustment Element	RV003
Specified Value	200 mVp-p

[Preparation]

1) Connect the following two points on VI-33 board.
- Q212 base (REC AFM) – GND
- IC007 pin ① (PILOT IN) – GND

[Adjustment procedure]

1) Adjust to 200 mVp-p with RP-25 board RV003.

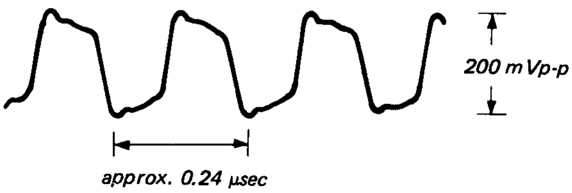


Fig. 8-28

8-4. AUDIO SYSTEM ADJUSTMENT

Use a colour-bar signal as video signal input when performing adjustment.
Connection of Audio Adjustment Measuring Instruments.
Connect the following audio measuring equipment in addition to the video measuring instruments.

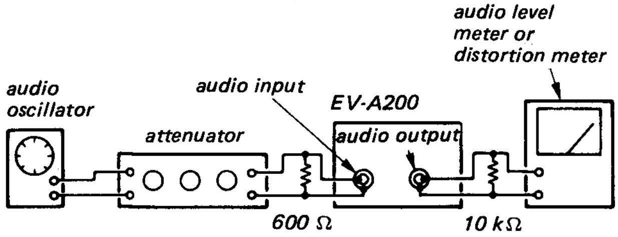


Fig. 8-29

[Adjustment order]

1) AFM Carrier Frequency Adjustment
2) AFM Deviation Adjustment
3) E-E Output Level Check
4) Overall Frequency Characteristics
5) Overall Distortion Ratio Check
6) Overall S/N Check

8-4-1. AFM Carrier Frequency Adjustment (TA-29 Board)

Mode	Record (SP mode)
Signal	None
Measurement Point	TP507
Measurement Equipment	Frequency counter
Adjustment Element	RV502
Specified Value	1.500 ±0.003 MHz

[Preparation]

1) Connect a jumper lead between pin ① of CN006 and GND.

[Adjustment procedure]

1) Adjust to 1.500 ±0.003 MHz with RV502.

8-4-2. AFM Deviation Adjustment (TA-29 Board)

Mode	Playback
Signal	Alignment tape, (WR5-3CSP)
Measurement Point	Audio output terminal
Measurement Equipment	Audio level meter
Adjustment Element	RV501
Specified Value	−10 ±0.2 dBs

[Adjustment procedure]

1) Adjust to −10 ±0.2 dBs with RV501.

8-4-3. E-E Output Level Check

Mode	E-E
Signal	400 Hz, −6.3 dBs
Measurement Point	CN006 pin ⑥ (EURO CONNECTOR)
Measurement Equipment	Audio level meter
Specified Value	−6.3 ±2 dBs

[Preparation]

1) Connect the audio measuring equipment, as shown in the Fig. 8-29 below.

[Checking procedure]

1) Confirm that audio output level is −6.3 ±2 dBs.

8-4-4. Overall Frequency Characteristics Check

Mode	Recording or Playback (SP and LP modes)
Signal	Input the following audio signals in order to the AUDIO LINE IN (EURO CONNECTOR CN006 pins ① and ③) 1. 400 Hz, −16.3 dBs 2. 30 Hz, −16.3 dBs 3. 14 kHz, −16.3 dBs
Measurement Point	AUDIO LINE OUT (EURO CONNECTOR CN006 pin ⑥) (terminated at 47 kΩ)
Measurement Equipment	Level meter
Specified Value	The playback level of the respective signals whose standard playback levels are specified as 400 Hz. 30 Hz: 0 ±3 dB 14 kHz: −2 ±3 dB

[Checking procedure]

1) Record the above 3 audio signals in order with about 5 second intervals.
2) Play back the portion which has been recorded.
3) Confirm that the playback levels of the respective signals satisfy the following specifications using 400 Hz playback level as reference.

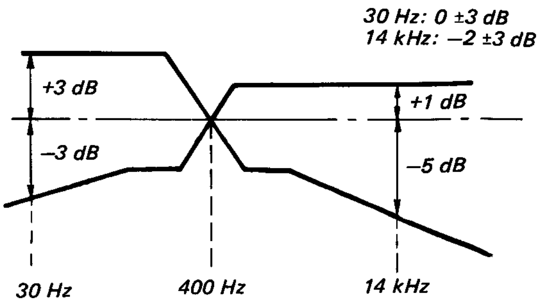


Fig. 8-30

8-4-5. Overall Distortion Ratio Check

Mode	Recording and Playback
Signal	400 Hz –6.3 dBs: AUDIO LINE IN (CN006 pins ① and ③)
Measurement Point	AUDIO LINE OUT (EURO CONNECTOR CN006 pin ⑥) (terminated at 47 kΩ)
Measurement Equipment	Level meter or distortion meter
Specified Value	Less than 0.5% (SP and LP modes)

[Checking procedure]

1) Record.
2) Play back the recorded section.
3) (During the use of filter as shown in Fig. 8-31.)
   The distortion ratio should be less than 0.5% both for SP and LP modes.
   (When filter is not used.)
   The distortion ratio should be less than 1.0% both for SP and LP modes.

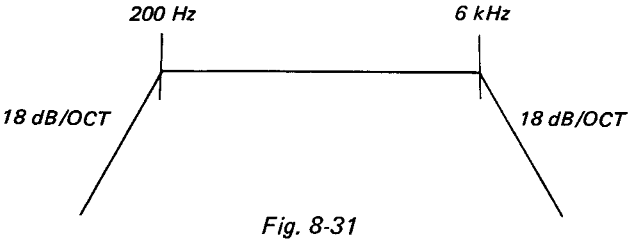


Fig. 8-31

8-4-6. Overall S/N Check

Mode	Recording and Playback
Signal	400 Hz –6.3 dB: AUDIO LINE IN (EURO CONNECTOR CN006 pins ① and ③)
Measurement Point	AUDIO LINE OUT (EURO CONNECTOR CN006 pin ⑥) (terminated at 47 kΩ)
Measurement Equipment	Level meter and distortion meter
Specified Value	More than 60 dB

[Checking procedure]

1) Record a 400 Hz, –10 dBs signal.
2) Record in non-signal state (short circuit AUDIO LINE IN pin)
3) Playback the recorded section and check that the level difference in both SP and LP modes between the signal (400 Hz section) and noise (non-signa section) is over 60 dB*.
   * When using an A curve acoustic filter.
   (When not using an A curve acousic filter, it should be over 57 dBs in both SP and LP modes.)

8-5. TUNER SYSTEM ADJUSTMENT

8-5-1. RF AGC Adjustment (TA-29 Board)

Mode	E-E
Signal	a broadcasting TV signal
Adjustment Element	RV001

[Adjustment procedure]

1) Turn RV001 so that snow (intensity-modulated display) noise appears on the monitor TV screen.
2) Slowly turn RV001 in reverse direction until the snow (intensity-modulated display) noise desappears.
3) Receive signals of all channels in turn, and ensure that there is no cross modulation beat, image deformation or snow noise effect.

8-5-2. AFT Adjustment (TA-29 Board)

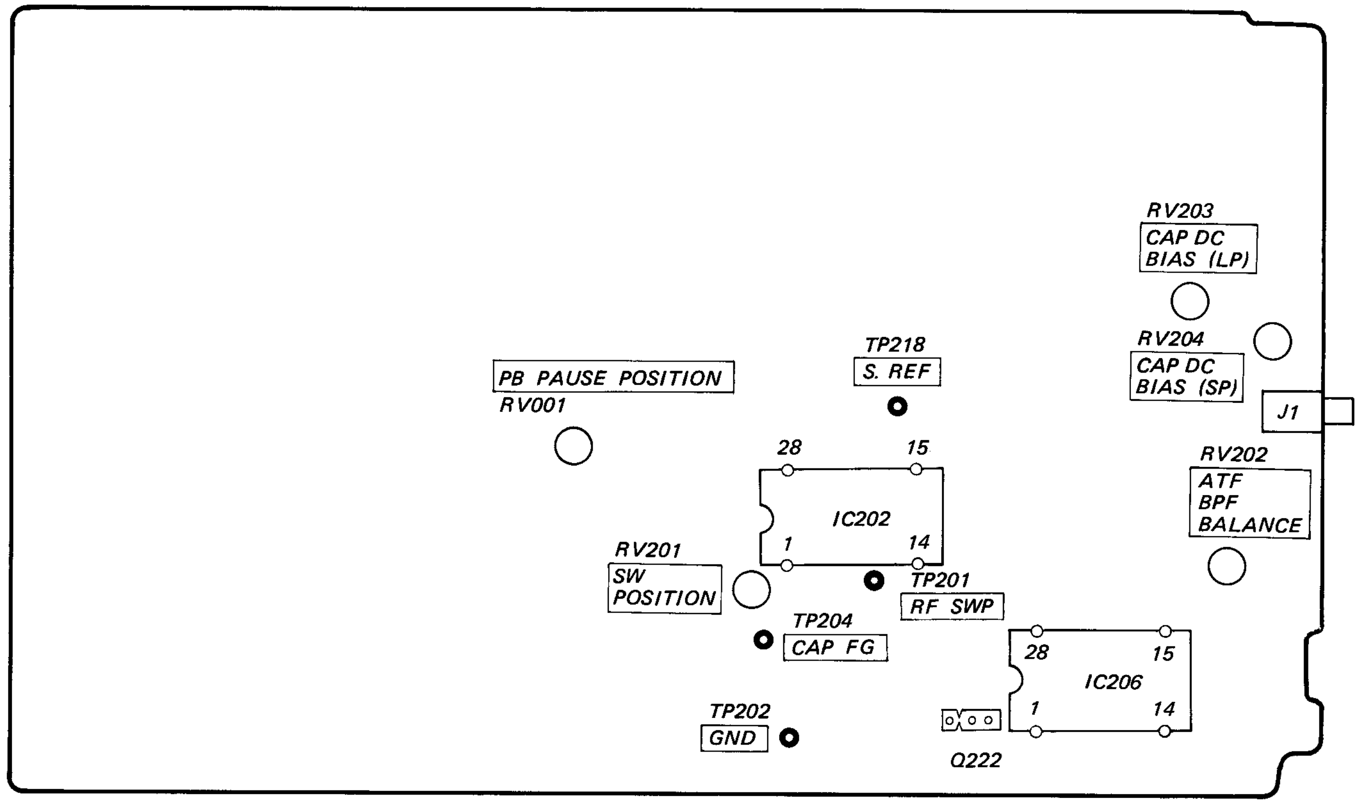
Mode	E-E
Signal	a broadcasting TV signal
Adjustment Element	L008

[Adjustment procedure]

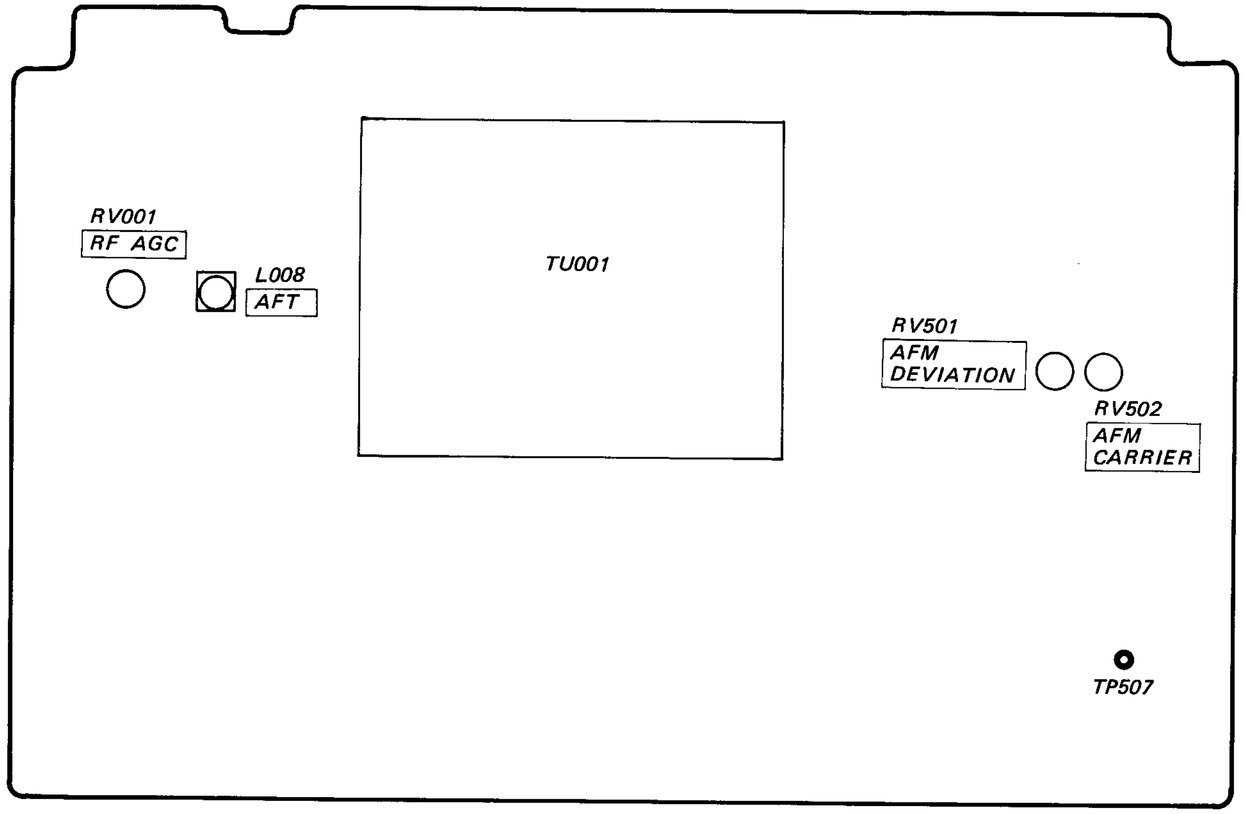
1) Turn off the AFT switch.
2) Press the tuning button and set for the optimum state while observing the monitor TV screen.
   (There should be no beat.)
3) Turn on L008 to make sure that there is no beat or picture disturbance.

PARTS LOCATION DIAGRAM FOR ADJUSTMENTS

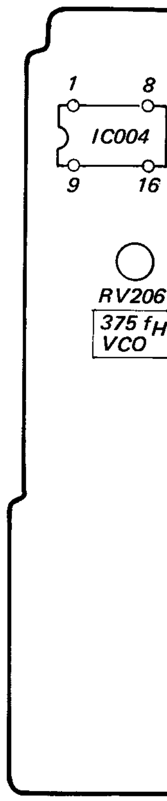
[SS-66 BOARD] – Component Side –


RV203
CAP DC BIAS (LP)
RV204
CAP DC BIAS (SP)
TP218
S. REF
PB PAUSE POSITION
RV001
J1
28
15
IC202
1
14
RV202
ATF BPF BALANCE
RV201
SW POSITION
TP201
RF SWP
TP204
CAP FG
28
15
IC206
1
14
TP202
GND
Q222

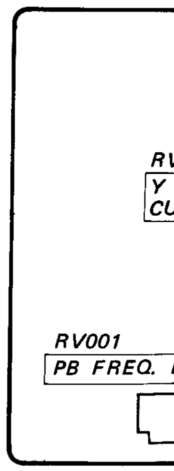
[TA-29 BOARD] – Conductor Side –


RV001
RF AGC
L008
AFT
TU001
RV501
AFM DEVIATION
RV502
AFM CARRIER
TP507

[VI-33 BO

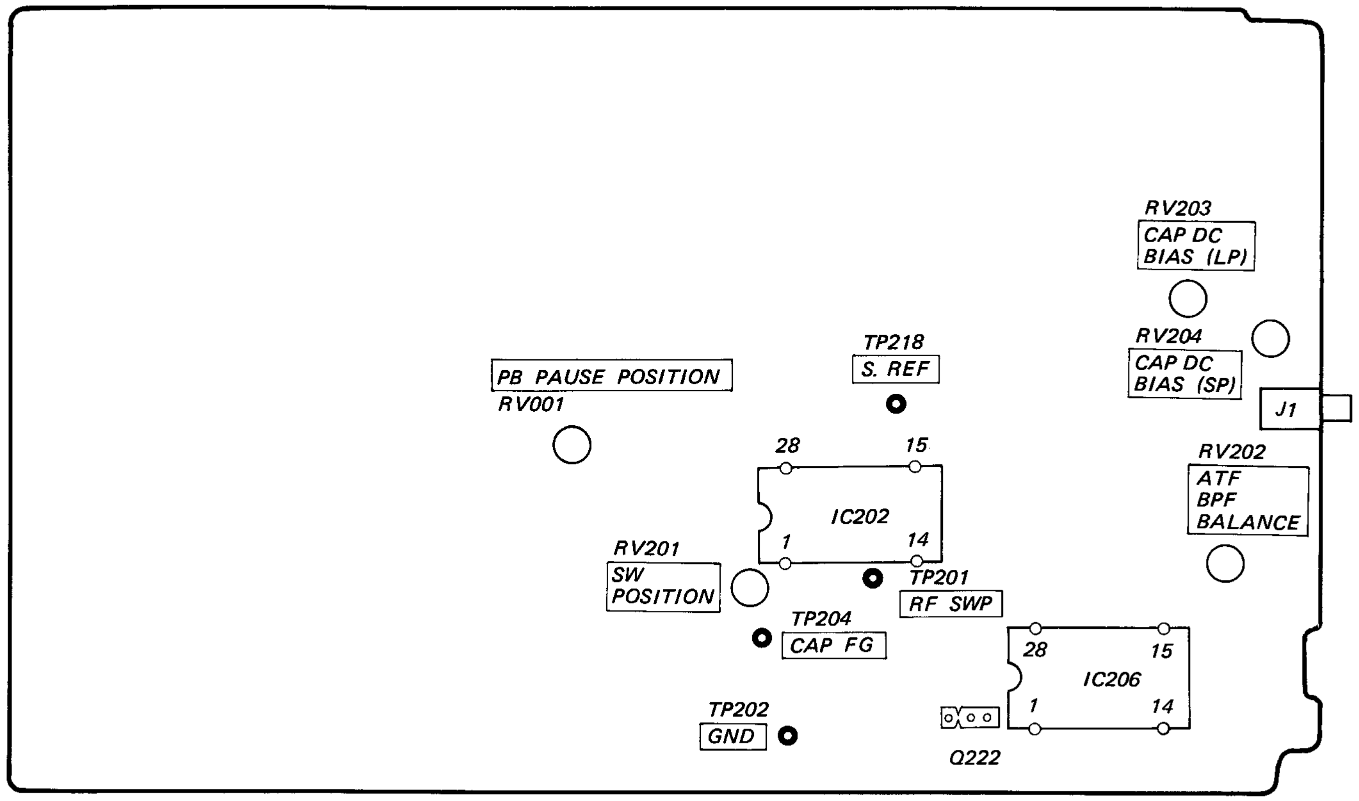

1
8
IC004
9
16
RV206
375 fH
VCO

[RP-25 BOAR

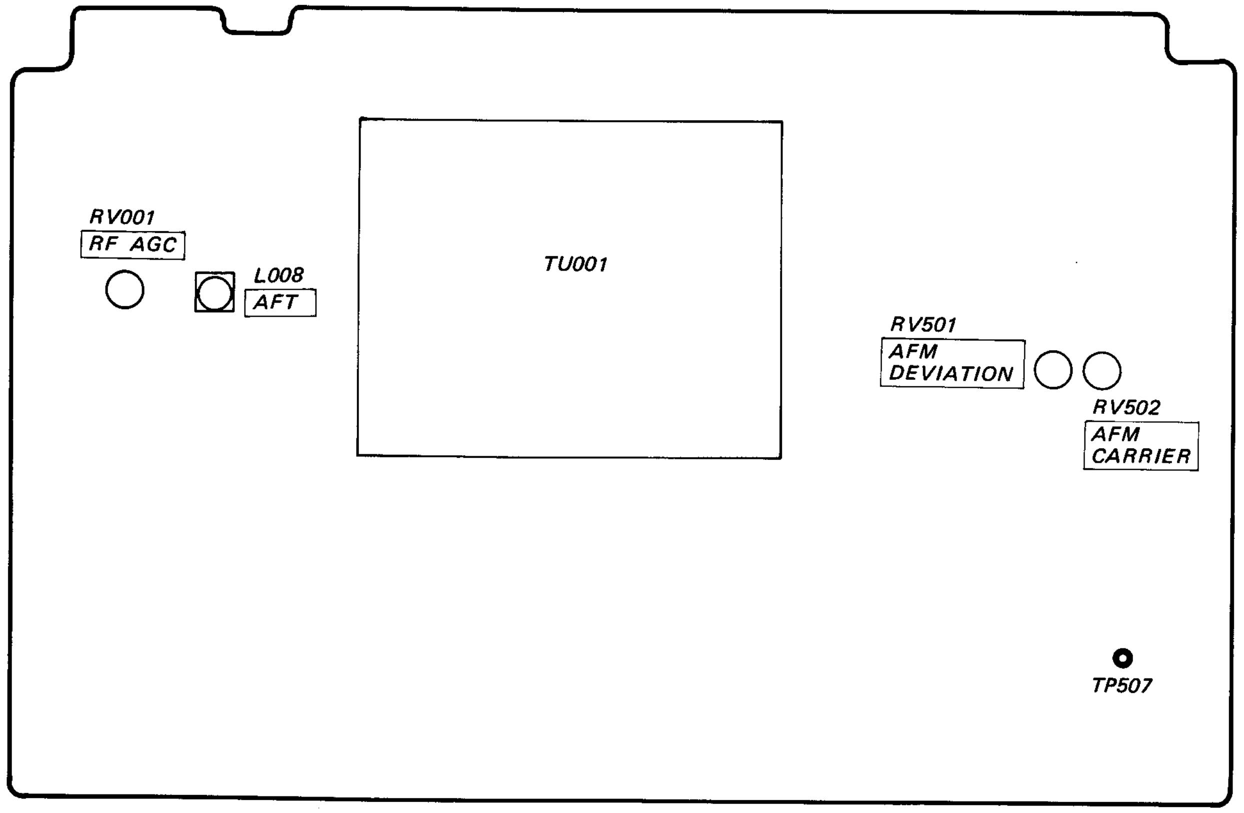

RV001
PB FREQ.

PARTS LOCATION DIAGRAM FOR ADJUSTMENTS

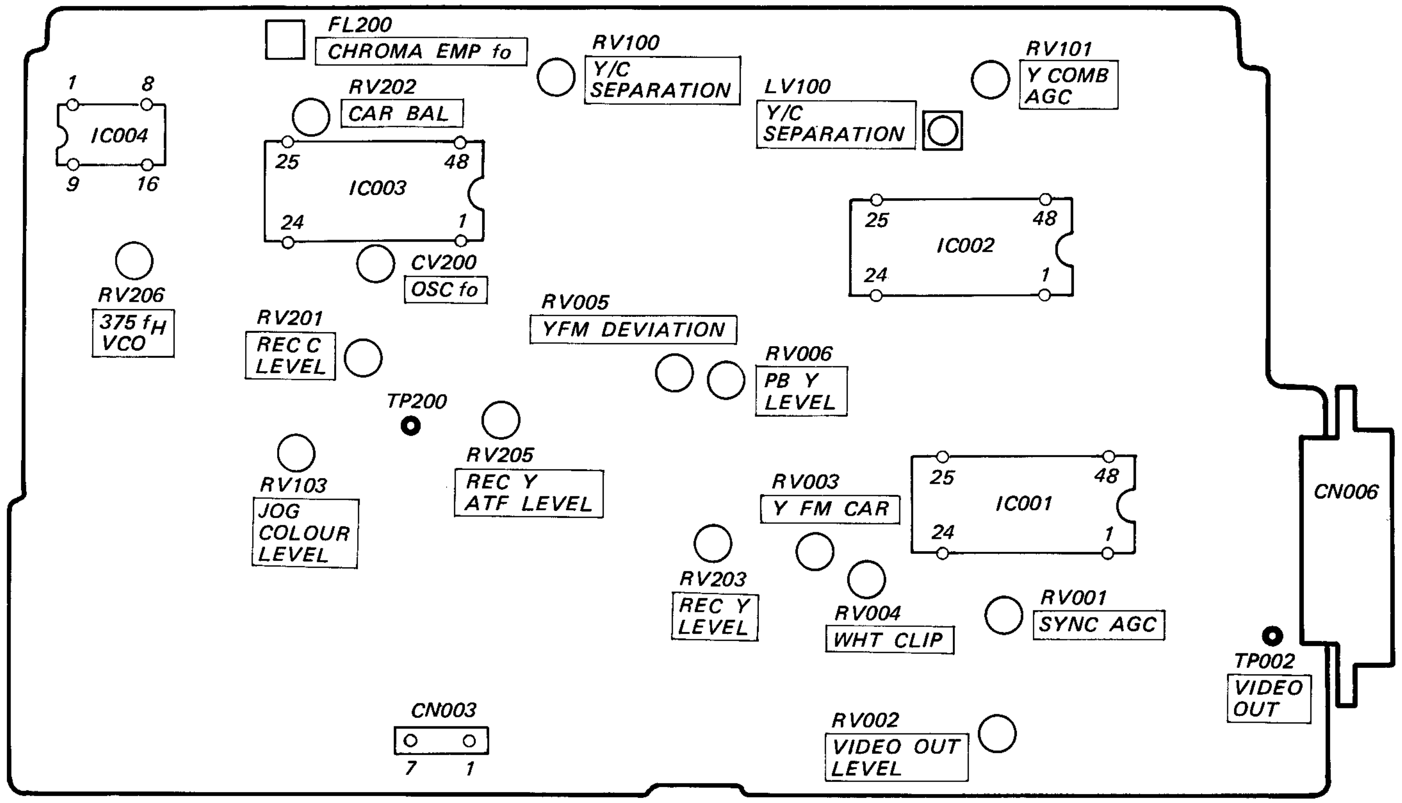
[SS-66 BOARD] – Component Side –


RV203
CAP DC BIAS (LP)
RV204
CAP DC BIAS (SP)
J1
PB PAUSE POSITION
RV001
TP218
S. REF
28
15
IC202
1
14
RV202
ATF BPF BALANCE
RV201
SW POSITION
TP201
RF SWP
TP204
CAP FG
28
15
IC206
1
14
TP202
GND
Q222

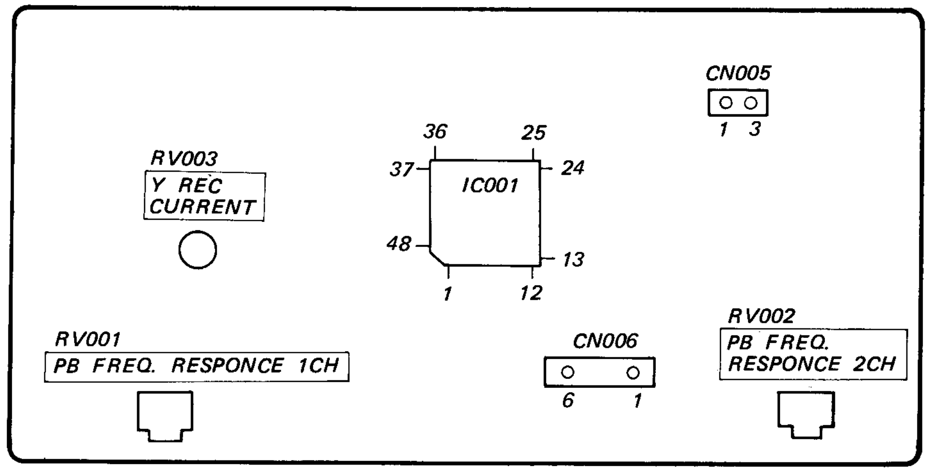
[TA-29 BOARD] – Conductor Side –


RV001
RF AGC
L008
AFT
TU001
RV501
AFM DEVIATION
RV502
AFM CARRIER
TP507

[VI-33 BOARD] – Conductor Side –

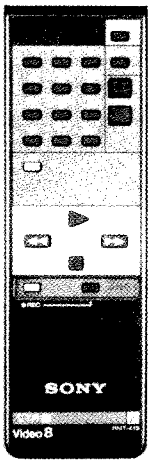

FL200
CHROMA EMP fo
RV100
Y/C SEPARATION
RV101
Y COMB AGC
1
8
IC004
9
16
RV202
CAR BAL
LV100
Y/C SEPARATION
25
48
IC003
24
1
25
48
IC002
24
1
RV206
375 fH VCO
CV200
OSC fo
RV201
REC C LEVEL
RV005
YFM DEVIATION
RV006
PB Y LEVEL
TP200
RV205
REC Y ATF LEVEL
RV103
JOG COLOUR LEVEL
RV003
Y FM CAR
25
48
IC001
24
1
CN006
RV203
REC Y LEVEL
RV004
WHT CLIP
RV001
SYNC AGC
TP002
VIDEO OUT
CN003
7
1
RV002
VIDEO OUT LEVEL

[RP-25 BOARD] – Conductor Side –


CN005
1 3
36
25
37
24
IC001
48
13
1
12
RV003
Y REC CURRENT
RV001
PB FREQ. RESPONCE 1CH
CN006
6
1
RV002
PB FREQ. RESPONCE 2CH

RMT-419

SERVICE MANUAL



SPECIFICATIONS

Remote control system	Infrared control
Power requirements	3 V dc 2 IEC designation R6 batteries
Dimensions	Approx. 55 × 20 × 175 mm (w/h/d) ($2\frac{1}{4}$ × $\frac{3}{4}$ × 7 inches) incl. projecting parts and controls
Weight	Approx. 110 g (4 oz) incl. batteries

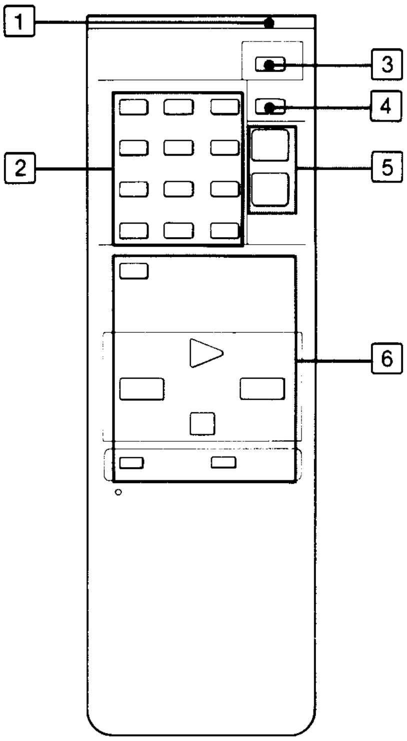
REMOTE COMMANDER

SONY®

ACC

1. LOCATION AND FUNCTION OF CONTROLS

A-5



Remote Commander RMT-419 A-5

1 **Indicator**
Lights up when the buttons on the Commander are pressed.

2 **Programme number buttons**
Press to select the TV programme to be recorded.
To select:
programme 5, press "5"
programme 15, press "1–" and "5"
programme 25, press "2–" and "5"

The following buttons have the same function as those on the unit with the similar name.

3 **ON switch**

4 **TV/VTR button**

5 **PROGRAM +/– buttons**

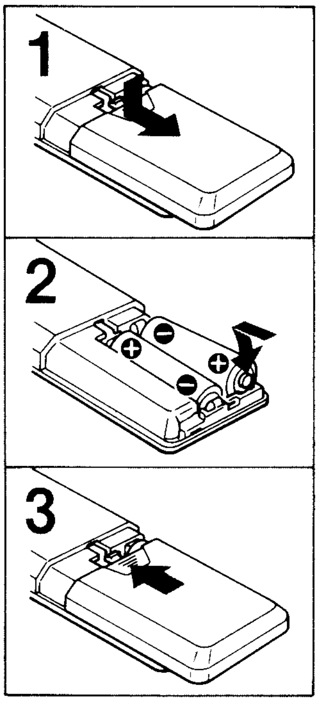
6 **Tape transport buttons**
❚❚ button
▶ button
◀◀ button
▶▶ button
■ button
REC buttons: Press both buttons simultaneously to start recording.

Note

The auto play function cannot be activated with the buttons on the Commander.

2. PREPARING THE REMOTE COMMANDER

F-1



Battery insertion F-1

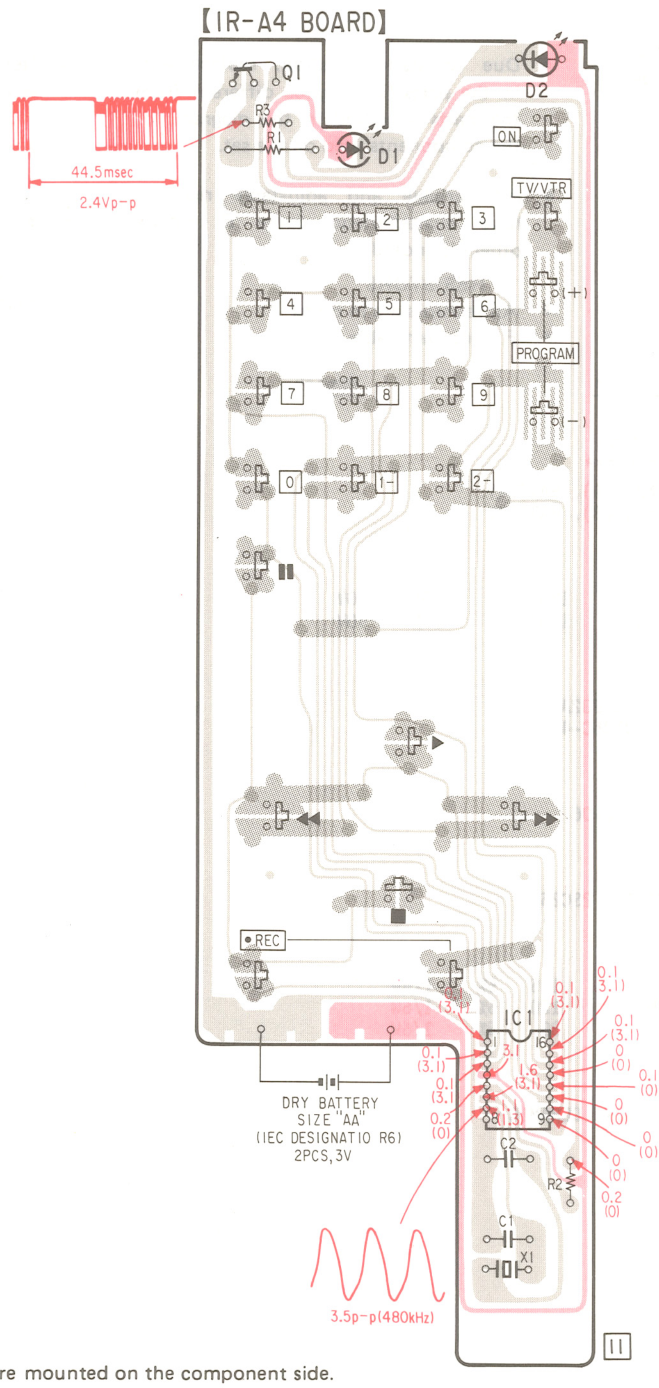
1 Open the lid.
2 Insert two IEC designation R6 batteries checking the correct polarity.
3 Close the lid.

Battery life
Under normal operation, batteries will last for about 6 months. When the batteries are exhausted, the indicator on the Commander will not light up when the buttons are pressed. Replace all the batteries with new ones.

Notes

- If the Commander is not to be used for a long period of time, remove the batteries to avoid possible damage from battery leakage.
- Operable range is limited.
  The shorter the distance between the Commander and the VTR, the wider the angle within which the Commander can be operated.

3. PRINTED WIRING BOARD

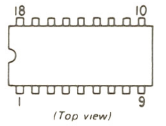

【IR-A4 BOARD】
Q1
R3
R1
D1
D2
ON
TV/VTR
1
2
3
4
5
6
7
8
9
0
1-
2-
(+)
(−)
PROGRAM
●REC
IC1
C2
R2
C1
X1
11
44.5msec
2.4Vp-p
3.5p-p(480kHz)
DRY BATTERY
SIZE "AA"
(IEC DESIGNATIO R6)
2PCS,3V

Note:

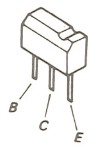
- ○— : indicates a lead wire mounted on the component side.
- ▨ : soldering side
- ▨ : B+ pattern.
- ▨ : Carbon pattern.

SEMICONDUCTORS

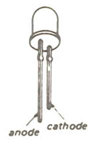
CX23042-06


18
10
1
9
(Top view)

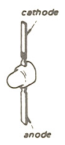
2SC2673



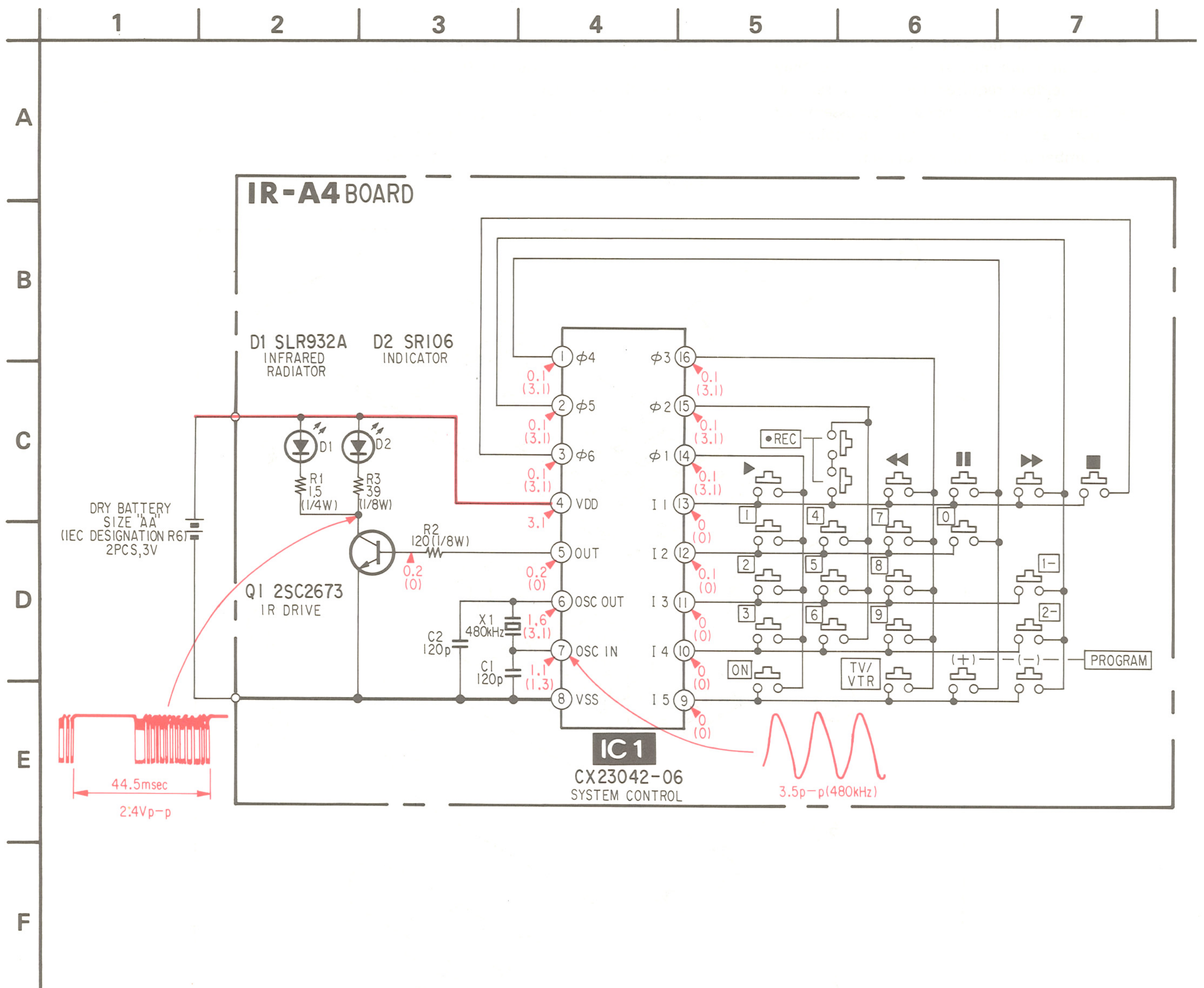
SLR932A


anode
cathode

SR106C


cathode
anode

4. SCHEMATIC DIAGRAM


1
2
3
4
5
6
7
A
B
C
D
E
F
IR-A4 BOARD
D1 SLR932A
INFRARED RADIATOR
D2 SR106
INDICATOR
R1 1.5 (1/4W)
R3 39 (1/8W)
Q1 2SC2673
IR DRIVE
R2 120(1/8W)
DRY BATTERY
SIZE 'AA'
(IEC DESIGNATION R6)
2PCS,3V
X1 480kHz
C2 120p
C1 120p
φ4
φ5
φ6
VDD
OUT
OSC OUT
OSC IN
VSS
φ3
φ2
φ1
I1
I2
I3
I4
I5
IC1
CX23042-06
SYSTEM CONTROL
●REC
ON
TV/VTR
PROGRAM
1-
2-
(+)
(−)
44.5msec
2.4Vp-p
3.5p-p(480kHz)

Note:

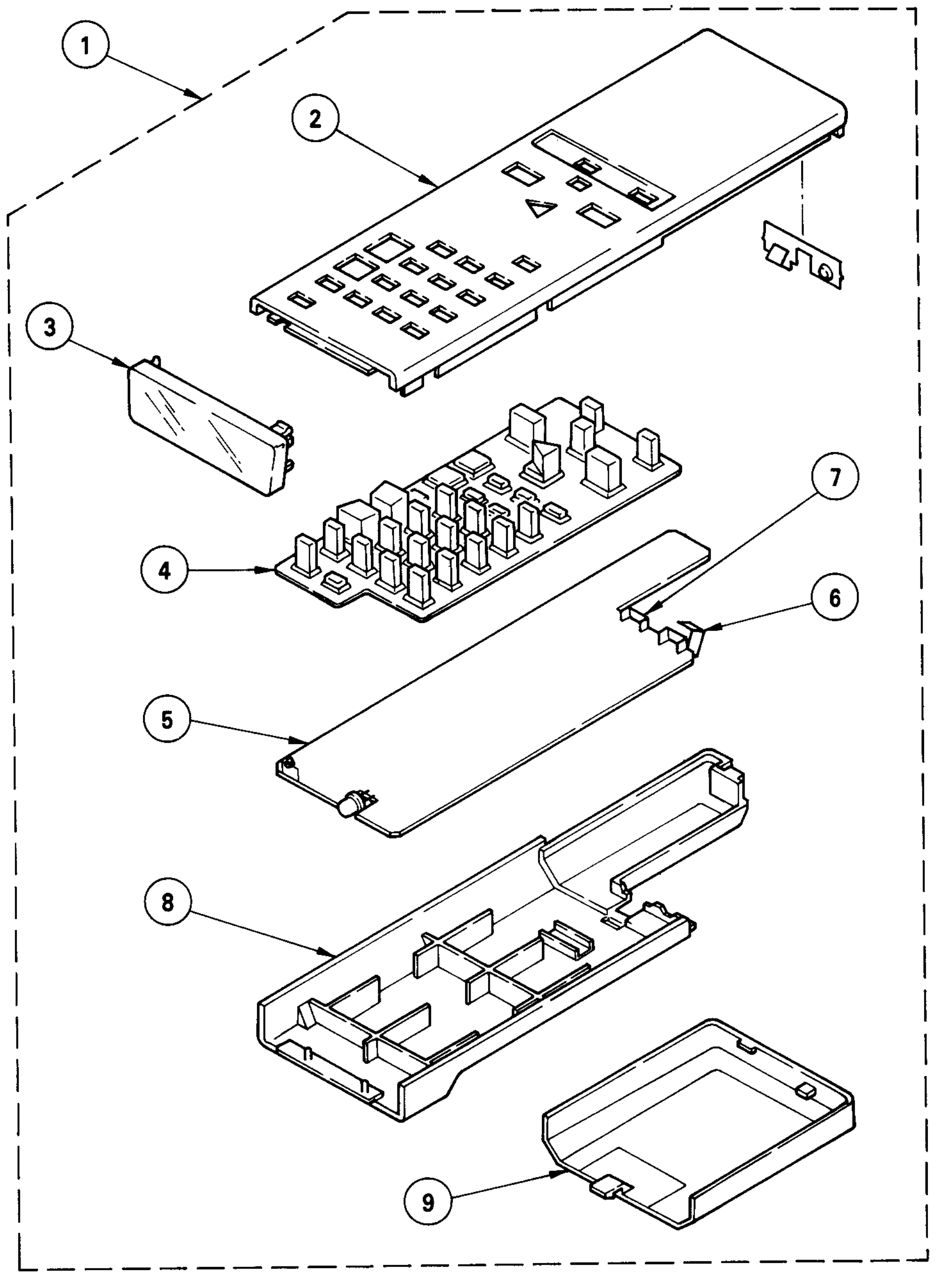
- All resistors are in ohms, 1/6W unless otherwise noted.
- All capacitors are in µF (p:pF) unless otherwise noted. 50V or less are not indicated except for electrolytic capacitors.
- —— : B+ bus.
- The voltage value is measured using a digital tester (10MΩ).

When indicating parts by reference number, please include the board name.

5. EXPLODED VIEW AND PARTS LIST

NOTE:

- Itmes with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.



No.	Part No.	Description	Remark
1	A-6767-236-A	COMMANDER ASSY	2-9
2	X-2357-230-1	CASE ASSY, UPPER	
3	2-387-133-01	PLATE, FROSTED	
4	2-357-258-01	RUBBER (F), CONTACT	
5	*1-619-382-11	IR-A4 BOARD	
6	2-387-103-01	TERMINAL (A), BATTERY	
7	2-387-104-01	TERMINAL (B), BATTERY	
8	2-357-248-01	CASE, LOWER	
9	2-357-245-01	COVER, BATTERY	

6. ELECTRICAL PARTS LIST

NOTE:

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

RESISTORS

- All resistors are in ohms
- F : nonflammable

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

CAPACITORS

- MF : μF, PF : μμF

COILS

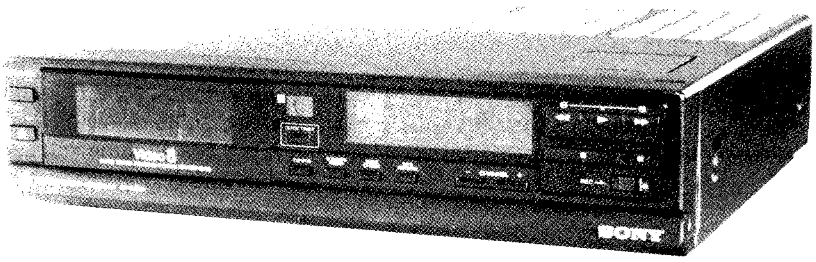
- MMH : mH, UH : μH

Ref.No	Part No.	Description				Remark
	*1-619-382-11	IR-A4 BOARD ************				
	2-387-103-01	TERMINAL (A), BATTERY				
	2-387-104-01	TERMINAL (B), BATTERY				
		CAPACITOR				
C001	1-102-107-00	CERAMIC	120PF	10%	50V	
C002	1-102-107-00	CERAMIC	120PF	10%	50V	
		DIODE				
D001	8-719-912-39	DIODE SLR-932A				
D002	8-719-107-95	DIODE SR106C-4				
		IC				
IC001	8-759-916-10	IC CX23042-06				
		TRANSISTOR				
Q001	8-729-967-32	TRANSISTOR 2SC2673				
		RESISTOR				
R001	1-247-073-00	CARBON	1.5	5%	1/4W	
R002	1-247-809-00	CARBON	120	5%	1/6W	
R003	1-247-797-00	CARBON	39	5%	1/6W	
		CRYSTAL				
X001	1-527-476-00	OSCILLATOR, CERAMIC				

EV-A200PS

SERVICE MANUAL

West Germany Model



November, 1986

Video 8

The circuits and mechanical structure of EV-A200PS West Germany Model are almost identical to those of EV-A200 AEP Model.
This manual contains only the difference.
Refer to the EV-A200 Service Manual for related information not contained in this manual.

SPECIFICATIONS

System

Videoaufnahmesystem	Zwei rotierende Köpfe, Schrägspuraufzeichnung, Frequenzmodulation
Audioaufzeichnungssystem	Rotierender Kopf, Frequenzmodulation
Videosignal	CCIR-Norm B, G und H PAL und DDR SECAM-Farbsystem
Verwendbare Cassetten	8-mm-Format-Cassetten
Bandgeschwindigkeiten	SP: ca. 20,051 mm/s LP: ca. 10,058 mm/s
Aufnahme-/Wiedergabezeit	SP: 90 Min. LP: 180 Min. (mit Sony Cassette P5-90 Sony)
Umspulzeit	ca. 3 Min. (mit Sony P5-90-Cassette)

Tunerteil

Empfangsbereich	VHF E2–20, UHF 21–69
Antenneneingang	Unsymmetrische 75-Ohm-Buchse
HF-Ausgangssignal	UHF-Kanäle E30 bis E39 (einstellbar) unsymmetrische 75-Ohm-Buchse

Eingänge und Ausgänge

Videoeingang	EURO-AV: 21pol (Pin 20) 1 Vss, 75 Ohm, unsymmetrisch, Videopositiv
Videoausgang	EURO-AV: 21pol (Pin 19) 1 V ss, 75 Ohm, unsymmetrisch, Videopositiv
Audioeingang	EURO-AV: 21pol (Pin 2 und 6) Über 10 kOhm, –6 dBs (0 dBs = 0,775 Veff)
Audioausgang	EURO-AV Ausgangsimpedanz unter 1 kOhm –6 dBs bei 10 kOhm Last, unsymmetrisch

Timer

Uhr	Quarzgesteuert
Zeitanzeige	24-Stunden-System
Timer-Programmierung	Nur Aufnahme 6 Aufnahmevorgänge für alle oder einen beliebigen Tag innerhalb von 7 Tagen oder wöchentlich an stets dem gleichen Tag
Aufrechterhaltung der Speicherung	ca. 3 Sek.

– Continued on page 2 –

8 VIDEO CASSETTE RECORDER

SONY®

MICROFILM

VIDEO

Allgemeine Daten

Stromversorgung	220 V Wechselspannung, 50 Hz
Leistungsaufnahme	27 W
Umgebungstemperatur	5° C bis 40° C
Lagerungstemperatur	–20° C bis 60° C
Abmessungen	ca. 355 × 85 × 373 mm (B/H/T) einschl. vorspringender Teile und Bedienungselemente
Gewicht	ca. 6 kg

Mitgeliefertes Zubehör

Fernbedienung RMT-419 mit zwei Mignonzellen
75-Ohm-Koaxkabel (1)
Schraubenzieher (1)

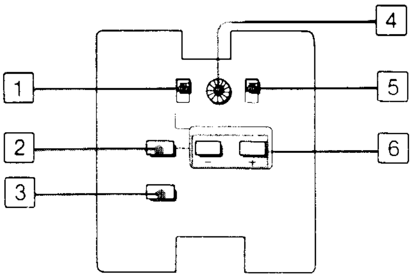
SONDERZUBEHÖR-VERBINDUNGSKABEL

VMC-2121CE (21pol-Anschluß auf 21pol-Anschluß)
VMC-2106S (21pol-Anschluß auf 6 Cinchstecker)
VMC-2104MS (21pol-Anschluß auf 4 Cinchstecker)

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL TO SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

Oberseite



1 **Schalter für automatische Feinabstimmung (AFT)**
Nomalerweise sollte dieser Schalter auf ON stehen. Der automatische Feinabstimmschaltkreis sorgt dann stets für bestmögliche Bildqualität.
Zum manuellen Feinabstimmen stellen Sie den Schalter auf OFF.

2 **Programmvorwahltaste (SEARCH)**
Zum Einleiten der Programmvorwahl.

3 **Löschtaste (CLEAR)**
Zum Löschen einer Programm-Position, so daß diese übersprungen wird.

4 **Schärferegler (SHARPNESS)**
Normalerweise in die einrastende Mittelposition stellen. Falls erforderlich, kann mit diesem Regler die Schärfe des Wiedergabebildes einjustiert werden.

5 **Schalter für automatische Farbsystemwahl (AUTO COLOUR)**
Stellen Se diesen Schalter normalerweise auf ON. Je nach empfangenem TV-Programm schaltet das Gerät dann automatisch auf das richtige Farbsystem (PAL oder DDR SECAM). Bei schwachem oder gestörtem Empfang stellen Sie den Schalter auf OFF. DDR SECAM-Programme werden dann in Schwarzweiß wiedergegeben.

6 +/– **Abstimmtasten (TUNING +/–)**
Steht die SEARCH-Taste auf ON, dienen diese Tasten zum Abstimmen auf einen Sender.
Stehen die SEARCH-Taste und der AFT-Schalter auf OFF, dienen die Tasten zur Feinabstimmung.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

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1. DIFFERENCE PARTS LIST

1-1. MECHANICAL PARTS

No.	Model Description	EV-A200 (AEP)	EV-A200PS	Pages on EV-A200 SERVICE MANUAL
2	PANEL ASSY, FRONT	X-3711-911-1	X-3711-944-1	99
51	KEYBOARD ASSY, PRESET	X-3711-907-1	X-3711-943-1	100
52	SHEET, INDICATION, PRESET	3-691-947-11	3-691-947-21	100
53	SS-66 BOARD, COMPLETE	*A-7060-458-A	* A-7060-728-A	100
56	TA-29 BOARD, COMPLETE	*A-7060-457-A	* A-7060-727-A	100
60	PS-127 BOARD	*1-619-885-11	* 1-619-885-71	100
61	PS-125 BOARD	*1-619-884-11	* 1-619-884-21	100
63	TRANSFORMER, POWER (T901)	⚠1-448-647-11	⚠1-448-695-11	100
64	PS-124 BOARD	*1-619-882-11	* 1-619-882-21	100
65	PS-125 BOARD	*1-619-883-11	* 1-619-883-21	100
66	FRAME, REAR	*3-711-944-01	* 3-713-635-01	100
69	BRACKET, POWER	*3-711-995-01	—	100
69	PLATE, BUSHING	—	* 3-713-633-01	100
72	PANEL, POWER	*3-711-936-01	* 3-713-636-01	100
83	VI-33 BOARD, COMPLETE	*A-7060-746-A	* A-7060-726-A	100
87	TC-3 BOARD, COMPLETE	—	* A-7068-031-A	100
	ACCESSORIES & PACKING MATERIALS			
	INDIVIDUAL CARTON	*3-711-999-01	* 3-713-646-01	124
	CUSHION (LOWER)	*3-713-401-01	* 3-713-640-01	124
	CUSHION (UPPER)	*3-713-402-01	* 3-713-639-01	124
	MANUAL, INSTRUCTION (ENGLISH)	3-765-601-11	—	124
	(FRENCH, GERMAN, DUTCH)	3-765-601-41	—	124
	(SPANISH, SWEDISH, ITALIAN)	3-765-601-51	—	124
	(GERMAN)	—	3-765-601-81	-

NOTE:

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

1-2. ELECTRICAL PARTS

Description \ Model	EV-A200 (AEP)	EV-A200PS	Pages on EV-A200 SERVICE MANUAL		
			PRINTED WIRING BOARD	SCHEMATIC DIAGRAM	ELECTRICAL PARTS LIST
VI-33 BOARD, COMPLETE	⋆A-7060-746-A	⋆A-7060-726-A	60 – 62	63 – 67	109
W007 (PIN, CONNECTOR 2P)	not supplied (to TA-29 board)	⋆1-560-890-00 (to TC-3 board)	61	63	–
SS-66 BOARD, COMPLETE	⋆A-7060-458-A	⋆A-7060-728-A	70 – 72	73 – 76	117
CN301 (PIN, CONNECTOR 2P to TC-3 board)	————	⋆1-560-890-00	–	–	–
S301 (SWITCH, SLIDE AUTO/PAL)	————	1-570-157-11	–	–	–
TA-29 BOARD, COMPLETE	⋆A-7060-457-A	⋆A-7060-727-A	83 – 84	85 – 87	114
C702 (CERAMIC)	————	1-102-074-00 0.001μF	–	–	–
R014 (CARBON)	1-247-823-00 470Ω	1-247-833-00 1.2kΩ	83	86	116
R706 (CARBON)	1-249-425-11 4.7kΩ	1-247-839-00 2.2kΩ	84	86	117
R707 (CARBON)	1-249-415-11 680Ω	1-247-819-00 330Ω	84	87	117
PS-124 BOARD	⋆1-619-882-11	⋆1-619-882-21	90 – 91	93	121
F101 (FUSE, TIME-LAG)	**⚠1-532-259-00 T1.6A**	**⚠1-532-203-00 T2A**	90	93	121
PS-125 BOARD	⋆1-619-883-11	⋆1-619-883-21	90 – 91	93 – 94	122
C204 (ELECT)	1-124-636-00 3300μF/25V	1-124-771-00 6800μF/25V	90	94	122
D201 (DIODE)	**⚠8-719-500-35 D2SB10**	**⚠8-719-500-32 D3SB10**	90	94	122
TC-3 BOARD, COMPLETE	————	⋆A-7068-031-A	–	–	–

NOTE:

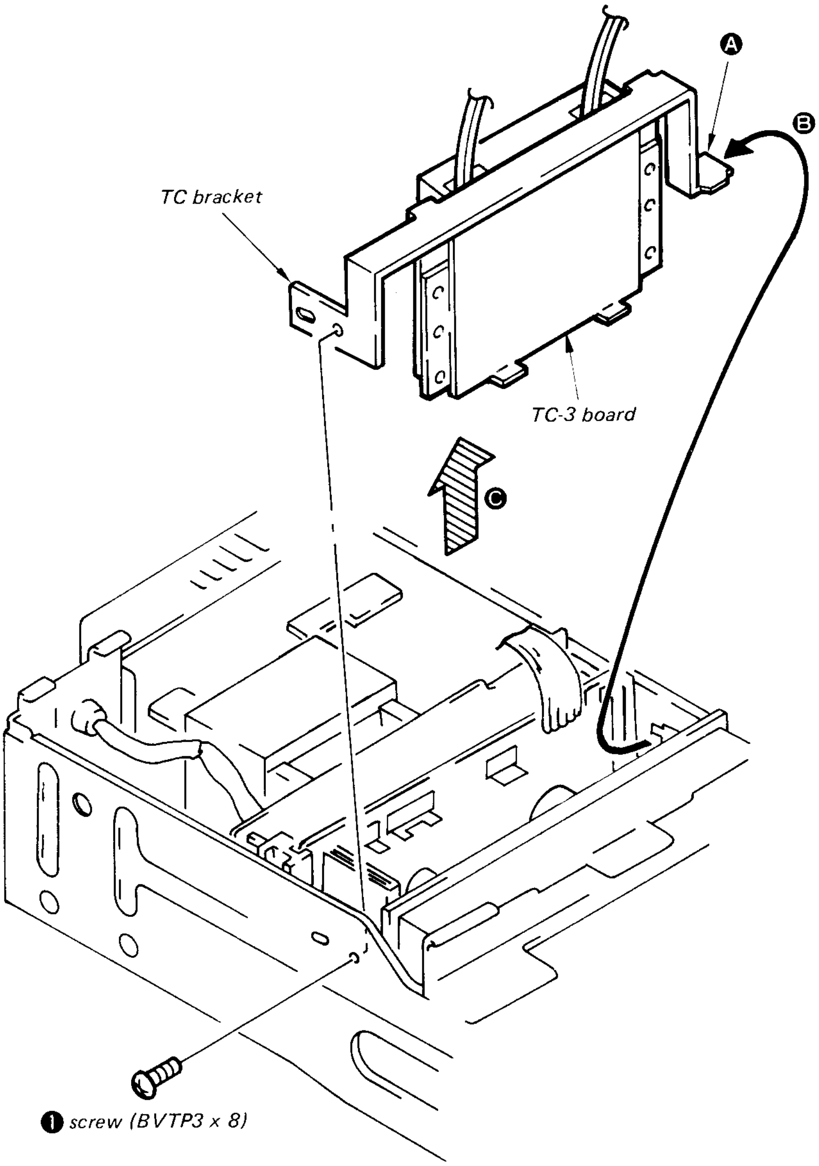
The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

- Items marked "⋆" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

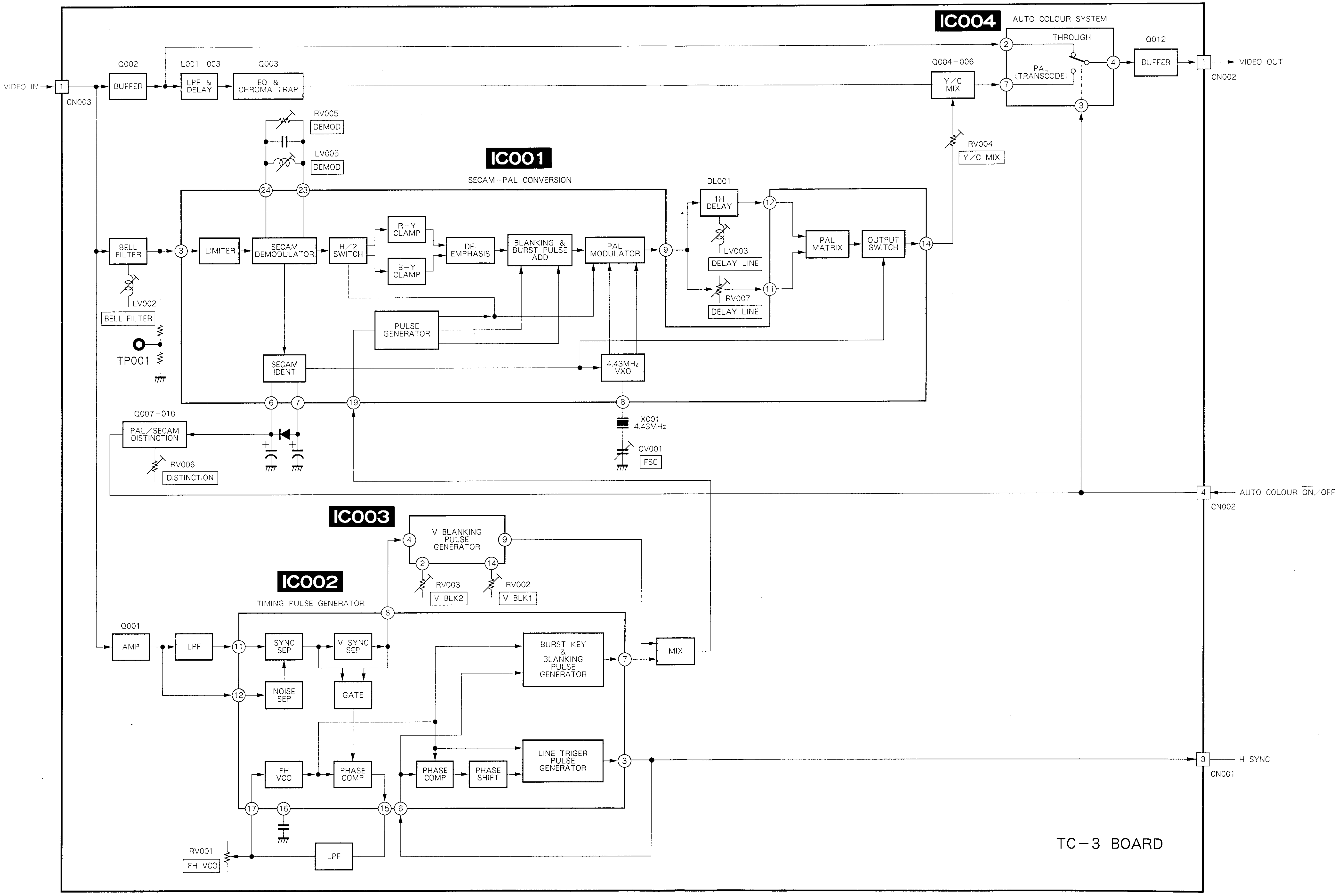
When indicating parts by reference number, please include the board name.

2. REMOVAL OF THE TC-3 BOARD

1) Remove the upper case.
   (See EV-A200 SERVICE MANUAL page 13, item 2-1. DISASSEMBLY OF CABINET.)
2) Remove a screw (BVTP3 x 8) ❶.
3) Pull out Ⓐ of the TC bracket from the chassis in the direction shown by the arrow Ⓑ, then the TC-3 board with the TC bracket in the direction shown by the arrow Ⓒ.


Ⓐ
Ⓑ
TC bracket
TC-3 board
Ⓒ
❶ screw (BVTP3 x 8)

3. TC-3 BOARD BLOCK DIAGRAM

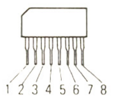

IC004
AUTO COLOUR SYSTEM
THROUGH
PAL (TRANSCODE)
Q012
BUFFER
VIDEO OUT
CN002
VIDEO IN
CN003
Q002
BUFFER
L001-003
LPF & DELAY
Q003
EQ & CHROMA TRAP
Q004-006
Y/C MIX
RV005
DEMOD
LV005
DEMOD
RV004
Y/C MIX
IC001
SECAM-PAL CONVERSION
DL001
1H DELAY
LV003
DELAY LINE
RV007
DELAY LINE
BELL FILTER
LV002
BELL FILTER
TP001
LIMITER
SECAM DEMODULATOR
H/2 SWITCH
R-Y CLAMP
B-Y CLAMP
DE-EMPHASIS
BLANKING & BURST PULSE ADD
PAL MODULATOR
PAL MATRIX
OUTPUT SWITCH
PULSE GENERATOR
SECAM IDENT
4.43MHz VXO
X001 4.43MHz
CV001
FSC
Q007-010
PAL/SECAM DISTINCTION
RV006
DISTINCTION
AUTO COLOUR ON/OFF
CN002
IC003
V BLANKING PULSE GENERATOR
RV003
V BLK2
RV002
V BLK1
IC002
TIMING PULSE GENERATOR
Q001
AMP
LPF
SYNC SEP
V SYNC SEP
NOISE SEP
GATE
BURST KEY & BLANKING PULSE GENERATOR
MIX
LINE TRIGER PULSE GENERATOR
FH VCO
PHASE COMP
PHASE COMP
PHASE SHIFT
H SYNC
CN001
RV001
FH VCO
LPF
TC-3 BOARD

4. TC-3 BOARD MOUNTING DIAGRAM AND SCHEMATIC DIAGRAM

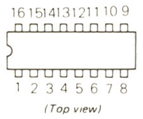
– Ref. No. TC-3 BOARD: 9,000 series –

● SEMICONDUCTORS

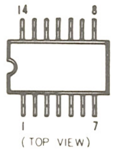
CX20061



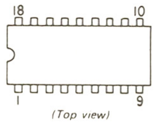
HD14538BP
MC14538BCP
TC4538BP


16 15 14 13 12 11 10 9
1 2 3 4 5 6 7 8
(Top view)

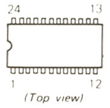
TC504013BF


14
8
1
7
(TOP VIEW)

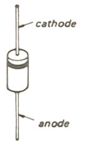
TDA2594


18
10
1
9
(Top view)

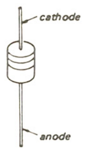
TDA3592A


24
13
1
12
(Top view)

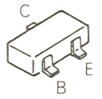
1SS106

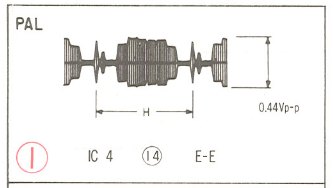

cathode
anode

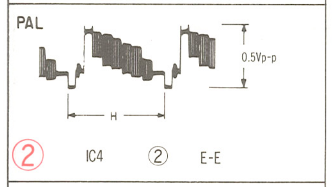
HZS6.8NB2
RD6.8ESB2

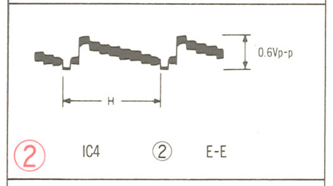

cathode
anode

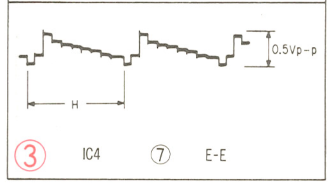
2SC2712G
DTA114EK











CV1	C-3
D1	D-7
D2	C-4
IC1	D-3
IC2	B-6
IC3	C-6
IC4	A-2
LV1	D-5
LV2	B-4
LV3	B-3
Q1	G-1
Q2	G-1
Q3	H-2
Q4	B-2
Q5	B-2
Q6	C-3
Q7	C-7
Q8	B-8
Q9	B-8
Q10	A-7
Q12	D-2
RV1	B-5
RV2	C-5
RV3	E-6
RV4	C-2
RV5	E-5
RV6	C-8
RV7	C-3
TP1	B-4,I-4

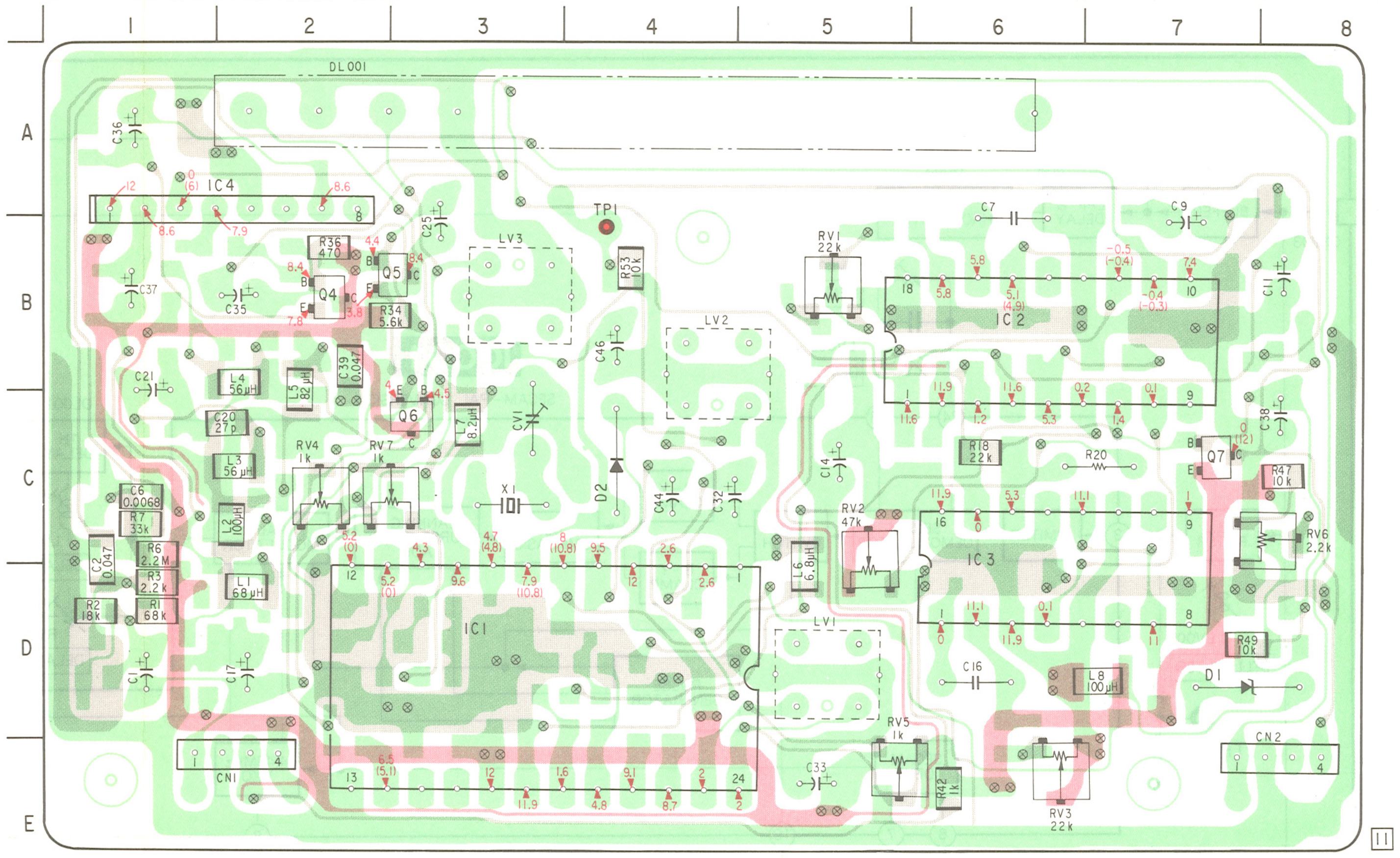
Note:

- ⊗ : mark is through hole.
- ▨ : Pattern from the side which enables seeing.
- ▨ : Pattern of the rear side.
- ▨ : B+ pattern from the side which enables seeing.

Caution:

Pattern face side: (Solder Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the pattern face are indicated.

【TC-3 BOARD】(COMPONENT SIDE)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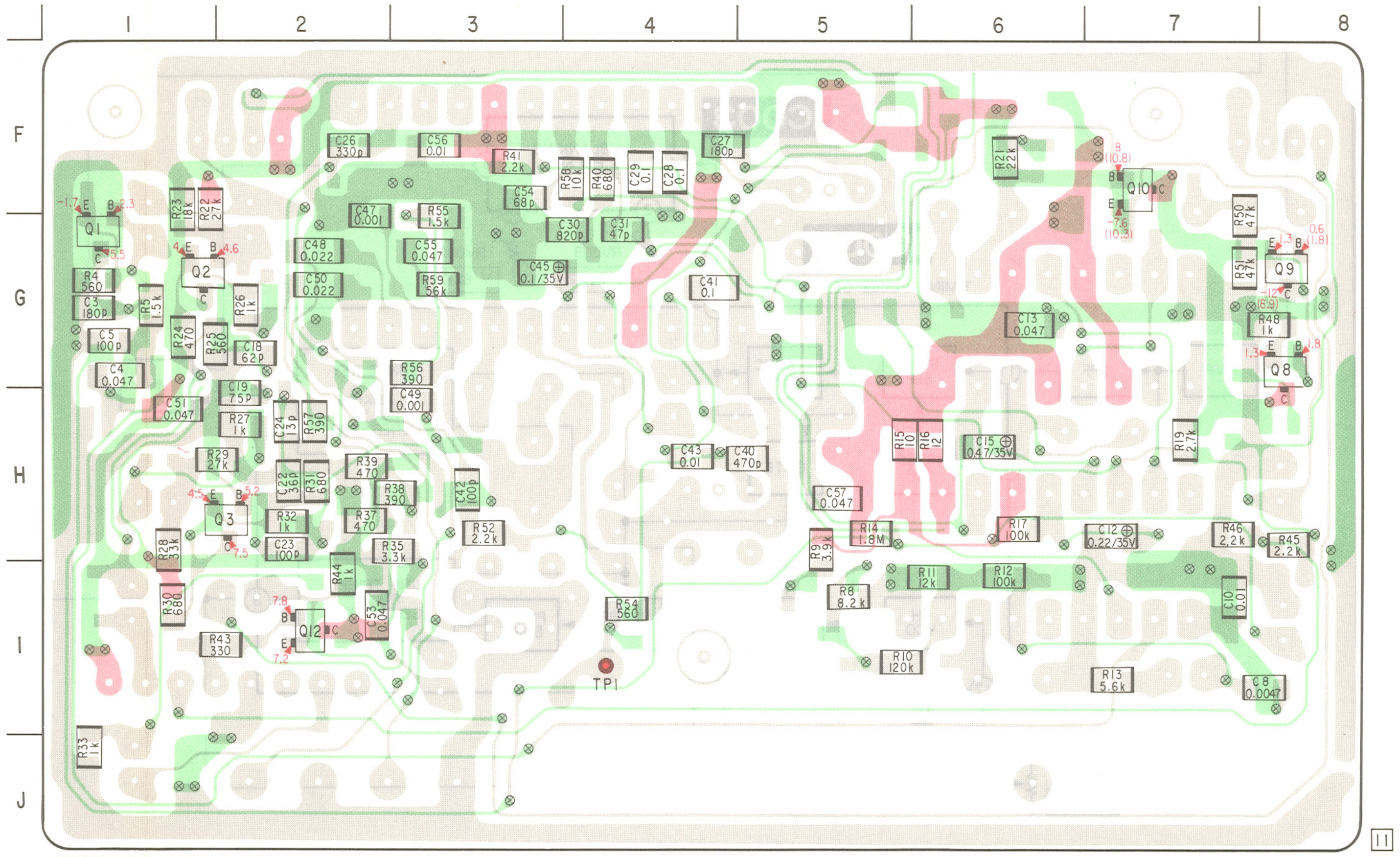
B
C
D
E
DL001
IC4
TP1
LV3
LV2
LV1
RV1 22k
IC2
IC1
IC3
Q4
Q5
Q6
Q7
D1
D2
X1
CV1
RV2 47k
RV3 22k
RV4 1k
RV5 1k
RV6 2.2k
RV7 1k
CN1
CN2
L8 100μH
L1 68μH
L2 100μH
L3 56μH
L4 56μH
L6 6.8μH
11

【TC-3 BOARD】(CONDUCTOR SIDE)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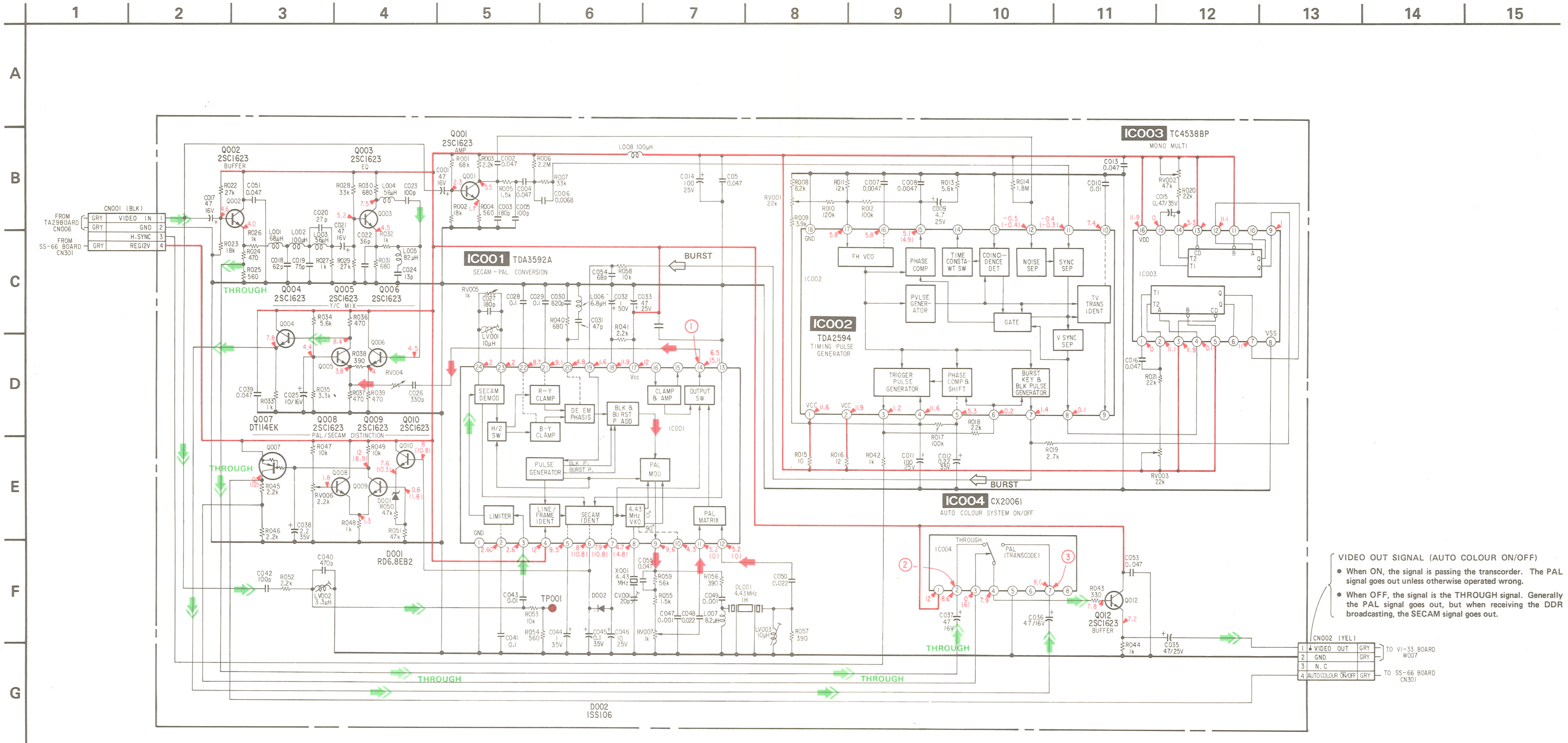
Q12
TP1
11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G
CN001 (BLK)
FROM TA29BOARD CN006
FROM SS-66 BOARD CN301
VIDEO IN
GND
H.SYNC
REG12V
GRY
Q002 2SC1623 BUFFER
Q003 2SC1623 EQ
Q001 2SC1623 AMP
Q004 2SC1623
Q005 2SC1623 Y/C MIX
Q006 2SC1623
Q007 DTI14EK
Q008 2SC1623
Q009 2SC1623
Q010 2SC1623
PAL/SECAM DISTINCTION
D001 RD6.8EB2
D002 ISS106
TP001
L008 100μH
IC001 TDA3592A
SECAM - PAL CONVERSION
BURST
SECAM DEMOD
R-Y CLAMP
B-Y CLAMP
H/2 SW
DE EM PHASIS
BLK & BURST P ADD
CLAMP & AMP
OUTPUT SW
PULSE GENERATOR
PAL MOD
LIMITER
LINE/FRAME IDENT
SECAM IDENT
4.43 MHz VXO
PAL MATRIX
IC002 TDA2594
TIMING PULSE GENERATOR
FH VCO
PHASE COMP
TIME CONSTANT SW
COINCIDENCE DET
NOISE SEP
SYNC SEP
PULSE GENERATOR
GATE
TV TRANS IDENT
V SYNC SEP
TRIGGER PULSE GENERATOR
PHASE COMP & SHIFT
BURST KEY & BLK PULSE GENERATOR
IC003 TC4538BP
MONO MULTI
IC004 CX20061
AUTO COLOUR SYSTEM ON/OFF
THROUGH
PAL (TRANSCODE)
Q012 2SC1623 BUFFER
X001 4.43MHz
DL001 4.43MHz 1H
THROUGH
CN002 (YEL)
VIDEO OUT
GND
N.C
AUTO COLOUR ON/OFF
TO VI-33 BOARD W007
TO SS-66 BOARD CN301

VIDEO OUT SIGNAL (AUTO COLOUR ON/OFF)

- When ON, the signal is passing the transcorder. The PAL signal goes out unless otherwise operated wrong.
- When OFF, the signal is the THROUGH signal. Generally the PAL signal goes out, but when receiving the DDR broadcasting, the SECAM signal goes out.

Note:

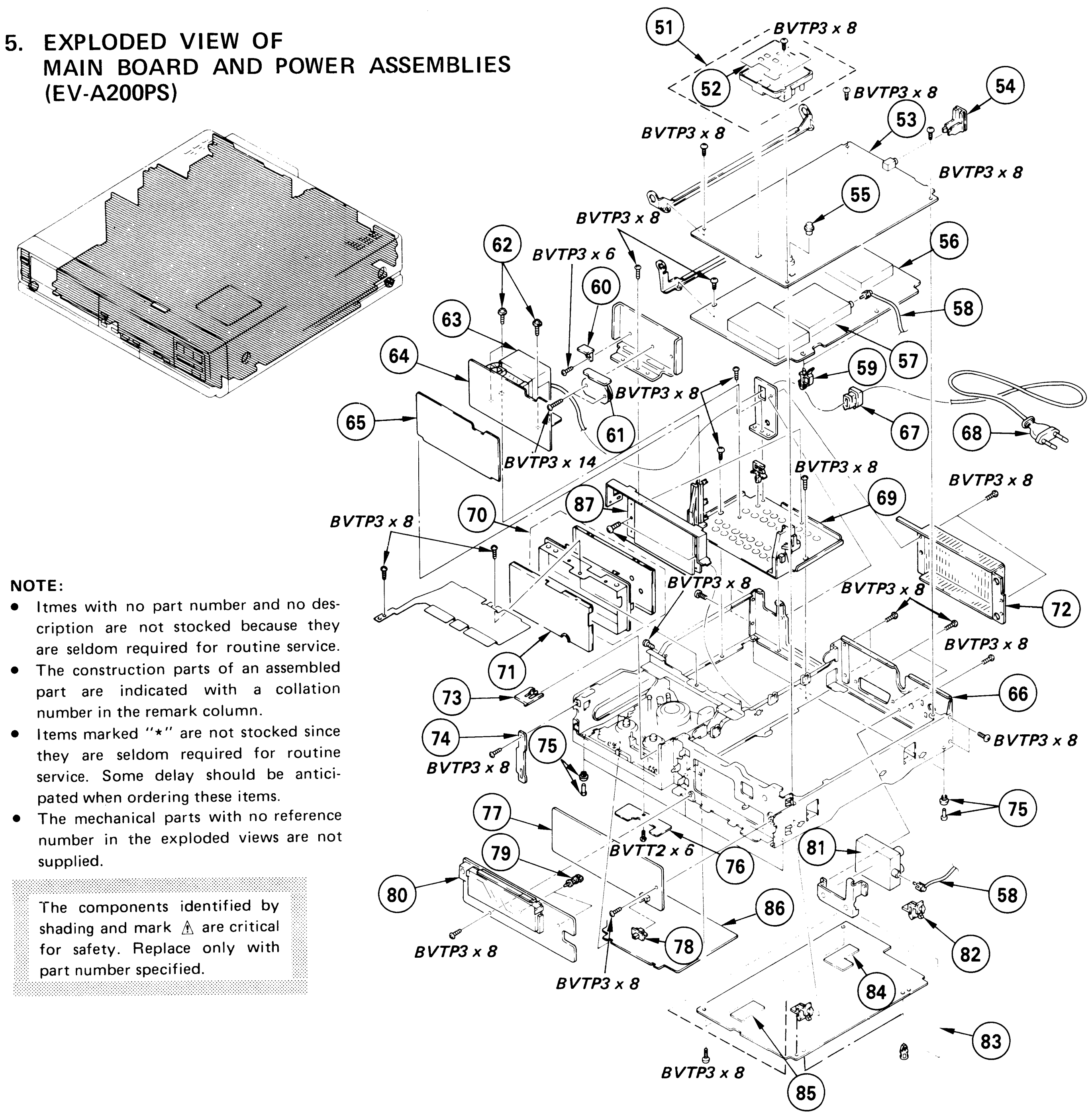
- All resistors are in ohms, 1/10W unless otherwise noted.
  kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics. and tantalums.
- ━━ : B + bus.

- no mark : SECAM in
  (   ): PAL in

When indicating parts by reference number, please include the board name.

- Signal path
  ➡ : REC Y SIGNAL
  ➡ : REC CHROMA SIGNAL
  ⇨ : REC Y & CHROMA SIGNAL

5. EXPLODED VIEW OF MAIN BOARD AND POWER ASSEMBLIES (EV-A200PS)



NOTE:

- Itmes with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

No.	Part No.	Description	Remark
51	X-3711-943-1	KEYBOARD ASSY, PRESET	52
52	3-691-947-21	SHEET, INDICATION, PRESET	
53	*A-7060-728-A	SS-66 BOARD, COMPLETE	
54	3-691-912-01	PLATE, ORNAMENTAL, REMOTE	
55	3-691-971-01	KNOB, SHARPNESS	
56	*A-7060-727-A	TA-29 BOARD COMPLETE	
57	⚠.1-463-577-31	TUNER, ET (BT-883AD)	
58	*1-555-110-00	CABLE, PIN	
59	*3-682-047-01	HOLDER (A), PC BOARD	
60	*1-619-885-21	PS-127 BOARD	
61	*1-619-884-21	PS-126 BOARD	
62	3-694-228-01	SCREW (3×6), TAPPING	
63	⚠.1-448-695-11	TRANSFORMER, POWER	
64	*1-619-882-21	PS-124 BOARD	
65	*1-619-883-21	PS-125 BOARD	
66	*3-713-635-01	FRAME, REAR	
67	⚠.3-703-244-00	BUSHING (2104), CORD	
68	⚠.1-534-817-31	CORD, POWER	
69	*3-713-633-01	PLATE, BUSHING	
70	*A-7060-452-A	RP-25 BOARD, COMPLETE	
71	*3-689-066-01	LID, SHIELD CASE, RP	
72	*3-713-636-01	PANEL, POWER	
73	*3-691-916-01	COVER, CAP	
74	*1-620-041-11	PW-29 BOARD	
75	3-697-937-01	LEG	
76	*1-620-043-11	RS-22 BOARD	
77	*A-7060-455-A	FT-17 BOARD, COMPLETE	
78	3-711-965-01	KNOB, SELECTION	
79	*3-682-419-11	HOLDER, P.C.B	
80	*A-7060-454-A	FT-16 BOARD, COMPLETE	
81	⚠.1-464-690-11	MODULATOR, RF (RFU-857)	
82	*3-682-613-00	CLIP (C), ANCHOR	
83	*A-7060-726-A	VI-33 BOARD, COMPLETE	84,85
84	*1-620-394-11	SK-17 BOARD	
85	*1-620-395-11	NC-6 BOARD	
86	*A-7060-453-A	MD-14 BOARD, COMPLETE	
87	*A-7068-031-A	TC-3 BOARD, COMPLETE	

6. TC-3 BOARD ELECTRICAL PARTS LIST

NOTE:

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

RESISTORS

- All resistors are in ohms
- F : nonflammable

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

CAPACITORS

- MF : μF, PF : μμF

COILS

- MMH : mH, UH : μH

Ref.No	Part No.	Description		Remark
	*A-7068-031-A	TC-3 BOARD, COMPLETE *********************		
		CAPACITOR		
C001	1-124-236-00	ELECT 47MF	20%	16V
C002	1-163-075-00	CERAMIC CHIP 0.047MF		50V
C003	1-163-123-00	CERAMIC CHIP 180PF	5%	50V
C004	1-163-075-00	CERAMIC CHIP 0.047MF		50V
C005	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C006	1-163-019-00	CERAMIC CHIP 0.0068MF	10%	50V
C007	1-130-479-00	MYLAR 0.0047MF	5%	50V
C008	1-163-017-00	CERAMIC CHIP 0.0047MF	10%	50V
C009	1-124-245-00	ELECT 4.7MF	20%	25V
C010	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C011	1-123-333-00	ELECT 100MF	20%	25V
C012	1-135-072-21	TANTAL. CHIP 0.22MF	20%	35V
C013	1-163-075-00	CERAMIC CHIP 0.047MF		50V
C014	1-123-333-00	ELECT 100MF	20%	25V
C015	1-135-074-21	TANTAL.CHIP 0.47MF	20%	35V
C016	1-130-491-00	MYLAR 0.047MF	5%	50V
C017	1-124-236-00	ELECT 47MF	20%	16V
C018	1-163-112-00	CERAMIC CHIP 62PF	5%	50V
C019	1-163-114-00	CERAMIC CHIP 75PF	5%	50V
C020	1-163-103-00	CERAMIC CHIP 27PF	5%	50V
C021	1-124-236-00	ELECT 47MF	20%	16V
C022	1-163-106-00	CERAMIC CHIP 36PF	5%	50V
C023	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C024	1-163-096-00	CERAMIC CHIP 13PF	5%	50V
C025	1-124-233-00	ELECT 10MF	20%	16V
C026	1-163-129-00	CERAMIC CHIP 330PF	5%	50V
C027	1-162-816-91	CERAMIC CHIP 180PF	5%	50V
C028	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C029	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C030	1-163-139-00	CERAMIC CHIP 820PF	5%	50V
C031	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C032	1-124-255-00	ELECT 1MF	20%	50V
C033	1-123-332-00	ELECT 47MF	20%	25V
C035	1-124-245-00	ELECT 4.7MF	20%	25V
C036	1-124-236-00	ELECT 47MF	20%	16V
C037	1-124-236-00	ELECT 47MF	20%	16V
C038	1-124-257-00	ELECT 2.2MF	20%	35V
C039	1-163-075-00	CERAMIC CHIP 0.047MF		50V
C040	1-163-133-00	CERAMIC CHIP 470PF	5%	50V
C041	1-163-077-00	CERAMIC CHIP 0.1MF		50V
C042	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C043	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C044	1-124-255-00	ELECT 1MF	20%	50V
C045	1-135-070-00	TANTAL. CHIP 0.1MF	20%	35V
C046	1-124-240-00	ELECT 10MF	20%	25V
C047	1-163-275-91	CERAMIC CHIP 0.001MF	5%	50V
C048	1-163-063-00	CERAMIC CHIP 0.022MF		50V
C049	1-163-275-91	CERAMIC CHIP 0.001MF	5%	50V
C050	1-163-063-00	CERAMIC CHIP 0.022MF		50V
C051	1-163-075-00	CERAMIC CHIP 0.047MF		50V
C053	1-163-075-00	CERAMIC CHIP 0.047MF		50V
C054	1-163-113-00	CERAMIC CHIP 68PF	5%	50V
C055	1-163-075-00	CERAMIC CHIP 0.047MF		50V
C056	1-163-075-00	CERAMIC CHIP 0.047MF		50V
C057	1-163-075-00	CERAMIC CHIP 0.047MF		50V
		CONNECTOR		
CN001	*1-564-014-00	PIN, CONNECTOR 4P		
CN002	*1-564-014-00	PIN, CONNECTOR 4P		
		TRIMMER		
CV001	1-141-227-00	CAP, CERAMIC TRIMMER 20PF		
		DIODE		
D001	8-719-109-97	DIODE RD6.8ESB2		
D002	8-719-911-06	DIODE ISS106		
		DELAY LINE		
DL001	1-415-313-00	DELAY LINE (1H)		
		IC		
IC001	8-759-933-40	IC TDA3592A		
IC002	8-759-933-74	IC TDA2594		
IC003	8-759-245-38	IC TC4538BP		
IC004	8-759-205-78	IC TC504013BF		
		COIL		
L001	1-408-787-00	INDUCTOR CHIP 68UH		
L002	1-408-789-21	INDUCTOR CHIP 100UH		
L003	1-408-786-21	INDUCTOR CHIP 56UH		
L004	1-408-786-21	INDUCTOR CHIP 56UH		
L005	1-408-788-21	INDUCTOR CHIP 82UH		
L006	1-408-775-41	INDUCTOR CHIP 6.8UH		
L007	1-408-776-00	INDUCTOR 8.2UH		
L008	1-408-789-21	INDUCTOR CHIP 100UH		
		VARIABLE COIL		
LV001	1-408-512-00	COIL (VARIABLE) 10UH		
LV002	1-408-530-00	COIL, VARIABLE 3.3UH		
LV003	1-408-512-00	COIL (VARIABLE) 10UH		
		TRANSISTOR		
Q001	8-729-271-22	TRANSISTOR 2SC2712G		
Q002	8-729-271-22	TRANSISTOR 2SC2712G		
Q003	8-729-271-22	TRANSISTOR 2SC2712G		
Q004	8-729-271-22	TRANSISTOR 2SC2712G		
Q005	8-729-271-22	TRANSISTOR 2SC2712G		
Q006	8-729-271-22	TRANSISTOR 2SC2712G		

Ref.No	Part No.	Description	Remark
Q007	8-729-901-04	TRANSISTOR DTA114EK	
Q008	8-729-271-22	TRANSISTOR 2SC2712G	
Q009	8-729-271-22	TRANSISTOR 2SC2712G	
Q010	8-729-271-22	TRANSISTOR 2SC2712G	
Q012	8-729-271-22	TRANSISTOR 2SC2712G	

RESISTOR

Ref.No	Part No.	Description	Remark
R001	1-216-093-00	METAL CHIP 68K 5% 1/10W	
R002	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R003	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R004	1-216-043-00	METAL CHIP 560 5% 1/10W	
R005	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R006	1-216-129-00	METAL CHIP 2.2M 5% 1/10W	
R007	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R008	1-216-071-00	METAL CHIP 8.2K 5% 1/10W	
R009	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R010	1-216-099-00	METAL CHIP 120K 5% 1/10W	
R011	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R012	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R013	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R014	1-216-127-11	METAL CHIP 1.8M 5% 1/10W	
R015	1-216-001-00	METAL CHIP 10 5% 1/10W	
R016	1-216-003-11	METAL CHIP 12 5% 1/10W	
R017	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R018	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R019	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R020	1-215-453-00	METAL 22K 1% 1/6W	
R021	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R022	1-216-083-00	METAL CHIP 27K 5% 1/10W	
R023	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R024	1-216-041-00	METAL CHIP 470 5% 1/10W	
R025	1-216-043-00	METAL CHIP 560 5% 1/10W	
R026	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R027	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R028	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R029	1-216-083-00	METAL CHIP 27K 5% 1/10W	
R030	1-216-045-00	METAL CHIP 680 5% 1/10W	
R031	1-216-045-00	METAL CHIP 680 5% 1/10W	
R032	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R033	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R034	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R035	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R036	1-216-041-00	METAL CHIP 470 5% 1/10W	
R037	1-216-041-00	METAL CHIP 470 5% 1/10W	
R038	1-216-039-00	METAL CHIP 390 5% 1/10W	
R039	1-216-041-00	METAL CHIP 470 5% 1/10W	
R040	1-216-045-00	METAL CHIP 680 5% 1/10W	
R041	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R042	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R043	1-216-037-00	METAL CHIP 330 5% 1/10W	
R044	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R045	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R046	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R047	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R048	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R049	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R050	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R051	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R052	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R053	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R054	1-216-043-00	METAL CHIP 560 5% 1/10W	
R055	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R056	1-216-039-00	METAL CHIP 390 5% 1/10W	
R057	1-216-039-00	METAL CHIP 390 5% 1/10W	
R058	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R059	1-216-091-00	METAL CHIP 56K 5% 1/10W	

VARIABLE RESISTOR

Ref.No	Part No.	Description	Remark
RV001	1-230-871-21	RES, ADJ, METAL GLAZE 22K	
RV002	1-230-873-11	RES, ADJ, METAL GLAZE 47K	
RV003	1-230-871-21	RES, ADJ, METAL GLAZE 22K	
RV004	1-230-867-11	RES, ADJ, METAL GLAZE 1K	
RV005	1-230-867-11	RES, ADJ, METAL GLAZE 1K	
RV006	1-230-868-21	RES, ADJ, METAL GLAZE 2.2K	
RV007	1-230-867-11	RES, ADJ, METAL GLAZE 1K	

CRYSTAL

Ref.No	Part No.	Description	Remark
X001	1-527-345-00	CRYSTAL, OSC (4.43MHZ)	

****

7. SECAM-PAL CONVERSION SYSTEM ELECTRICAL ADJUSTMENT

During the adjustment, see the parts location diagram for adjustments on page 20.

- Make this adjustment after aligning the PAL video system.
- For this adjustment, use the equipment listed below.

[Equipment Required]

(1) PAL Colour Monitor TV
(2) Oscilloscope, Dual-trace, Bandwidth . . . . . more than 10 MHz with delay mode
(3) SECAM colour-bar generator with RF OUT terminal
(4) PAL vector scope
(5) Frequency counter
(6) Digital voltmeter

[Setup for Adjustment]

The antenna should be connected correctly to the antenna input terminal of the videocassette recorder.

It is important that the video output signal satisfies the specification because the telecast signal received by the incorporated tuner of the videocassette recorder is utilized as the adjustment signal of the machine. The incorporated tuner should be set to the channel with the best reception. The video signal should be checked with an oscilloscope connected to CN001 pin ① on TC-3 board. Verify that the sync signal amplitude is approx. 0.3 Vp-p and the video signal amplitude is approx. 0.7 Vp-p at peak. Adjust the fine tuning while observing the signal and the TV screen so that the line ID signal amplitude becomes approx. 0.3 ±0.1 Vp-p. Also confirm that there is not spikes observed at the sync signal portion. (See Fig. 7-1.)

The video (colour-bar) signal for the adjustment is shown in Fig. 7-1.

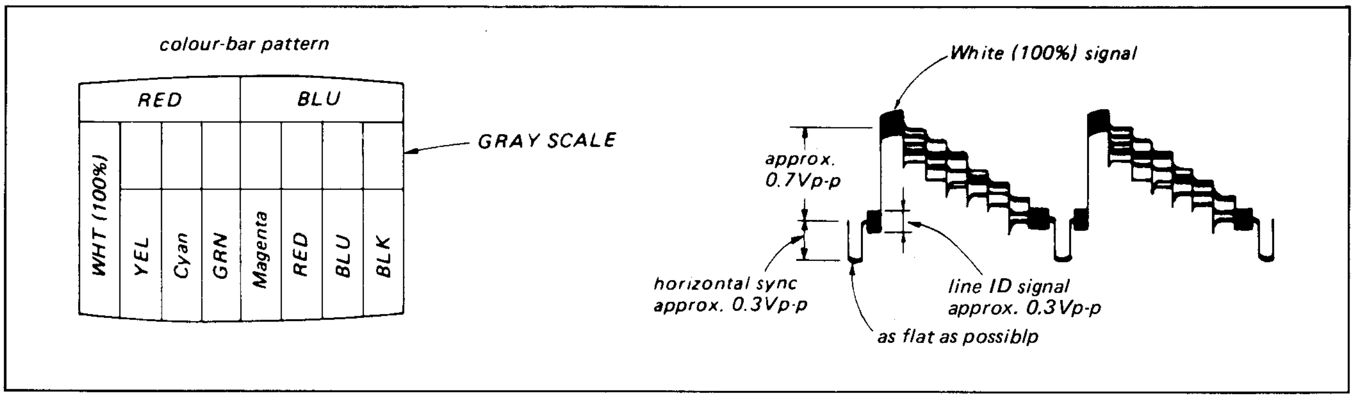

colour-bar pattern
RED
BLU
GRAY SCALE
WHT (100%)
YEL
Cyan
GRN
Magenta
RED
BLU
BLK
White (100%) signal
approx. 0.7Vp-p
horizontal sync approx. 0.3Vp-p
line ID signal approx. 0.3Vp-p
as flat as possiblp

Fig. 7-1 SECAM video (colour-bar) signal

7-1. f$_H$ VCO ADJUSTMENT (TC-3 BOARD)

Mode	E-E
Signal	Non-signal (Remove AERIAL IN cable.)
Measurement Point	Pin ③ of IC002
Measurement Equipment	Frequency counter
Adjustment Element	RV001
Specified Value	15.625 ±0.01 kHz

[Connection]

Connect between pin ⑪ of IC002 and GND with a capacitor of 0.1 μF.

[Adjustment procedure]

Adjust with RV001 so that it becoems 15.625 ±0.01 kHz.

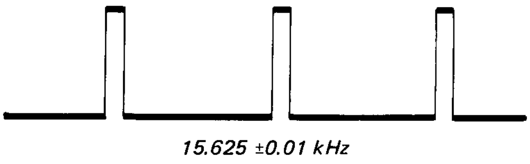


Fig. 7-2

7-2. V BLANKING PULSE ADJUSTMENT (TC-3 BOARD)

Mode	E-E
Signal	SECAM colour-bar
Measurement Point	CH1: Pin ① of CN002 CH2: Pin ⑨ of IC003
Measurement Equipment	Oscilloscope
Adjustment Element	RV002, RV003
Specified Value	Leading edge adjustment (RV002) . . . −6 ±1 H Trailing edge adjustment (RV003) . . . +23 ±0.5 H

[Adjustment procedure]

1) Adjust with RV003 so that the trailing edge of the V blanking pulse comes to the position of +23 ±0.5 H (+1472 ±32 μsec) from the front edge of the vertical SYNC signal.
2) Adjust with RV002 so that the leading edge of the V blanking pulse comes to the position of −6 ±1 H (−384 ±64 μsec) from the front edge of the vertical SYNC signal.

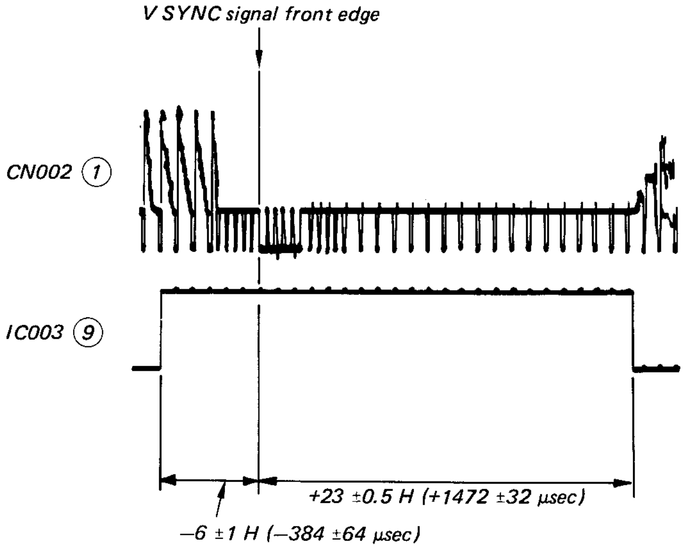


Fig. 7-3

7-3. BELL FILTER ADJUSTMENT (TC-3 BOARD)

Mode	E-E
Signal	SECAM colour-bar
Measurement Point	TP001 (Connecting point of R053 and R054)
Measurement Equipment	Oscilloscope
Adjustment Element	LV002
Specified Value	The level variation of the chroma signal amplitude is 0 ±10%.

Note: When performing (Adjustment procedure 1), be sure to use 1:1 probe as the signal level of TP001 is extremely small. In addition, when the adjustment is impossible because of the signal level is too small to read, perform (Adjustment procedure 2).

[Adjustment procedure 1]
Adjust LV002 until the waveform is flat.

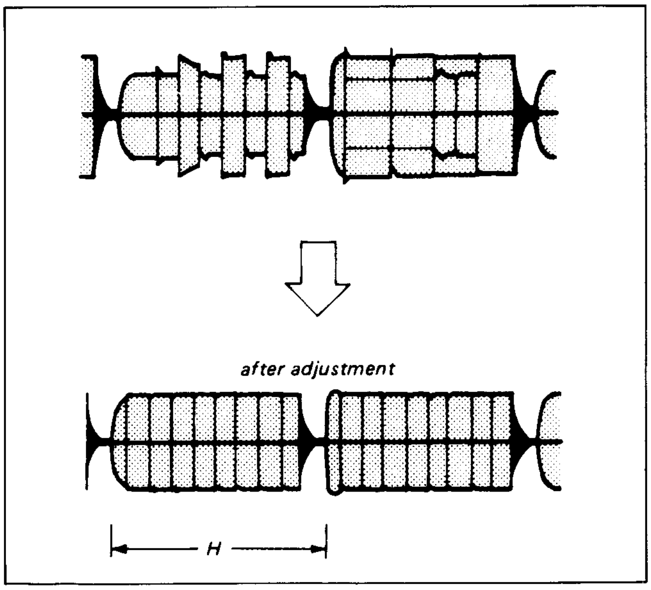


Fig. 7-4 Bell filter adjustment

[Adjustment procedure 2]

1) Set the picture level of the monitor TV to maximum.
2) Adjust by turning LV002 so that the boarders of the respective colour-bars (especially red and blue) become vivid and stop LV002 at the position where the beat (red and magenta sections) becomes small.

7-4. FSC ADJUSTMENT (TC-3, VI-33 BOARDS)

Mode	E-E
Signal	SECAM colour-bar
Measurement Point	IC003 pin ⑧ on VI-33 board
Measurement Equipment	Frequency counter
Adjustment Element	CV001 on TC-3 board
Specified Value	4433618.75 ±10 Hz

Note: Connect the frequency counter through a buffer with high impedance (approx. 10 MΩ) and low capacity (less than 10 pF).

[Adjustment procedure]
Adjust to 4433618.75 ±10 Hz with CV001 on TC-3 board.

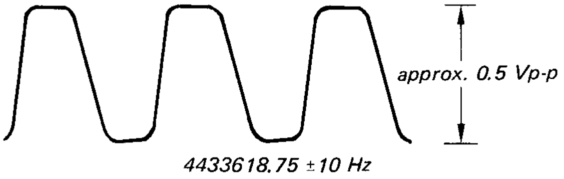


Fig. 7-5

7-5. DEMODULATOR ADJUSTMENT (TC-3 BOARD)

Mode	E-E
Signal	SECAM colour-bar
Measurement Point	CN002 pin ①
Measurement Equipment	Oscilloscope
Adjustment Element	LV001, RV005
Specified Value	Minimum carrier leak (less than 20 mVp-p)

[Adjustment procedure]
Adjust LV001 and RV005 alternately to minimize carrier leak.

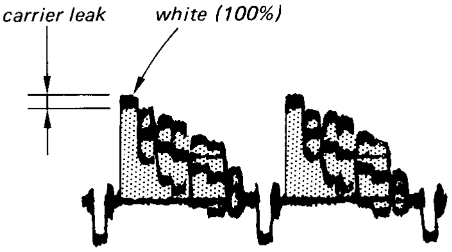


Fig. 7-6

7-6. DELAY LINE ADJUSTMENT (TC-3, VI-33 BOARDS)

Mode	E-E
Signal	SECAM colour-bar
Measurement Point	CN006 pin ⑲ (TP002) on VI-33 board
Measurement Equipment	PAL vector scope (75 Ω terminated)
Adjustment Element	LV003, RV007 on TC-3 board
Specified Value	1. Be sure that RED and CYAN are within the (⊞). 2. Be sure that other colours than the above are within (⬚).

[Adjustment procedure]

Adjust with LV003 and RV007 of TC-3 board alternately so that the colour luminescent spots come into the specified frame.

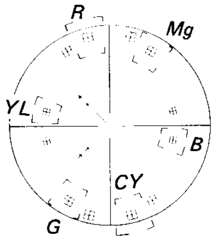


Fig. 7-7

7-7. Y/C MIX ADJUSTMENT (TC-3 BOARD)

Mode	E-E
Signal	SECAM colour-bar
Measurement Point	CN002 pin ①
Measurement Equipment	Oscilloscope
Adjustment Element	RV004
Specified Value	When the SYNC level is specified as 100%, the burst level becomes 100 ±5%.

[Adjustment procedure]

Adjust with RV004 so that the burst level becomes equivalent to the SYNC level.

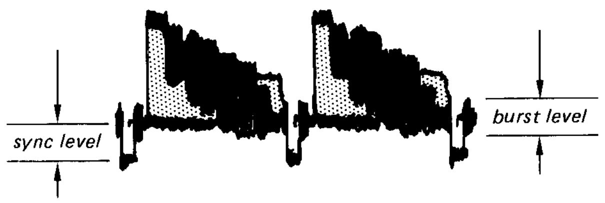

sync level
burst level

Fig. 7-8

7-8. PAL/SECAM DISTINCTION ADJUSTMENT (TC-3 BOARD)

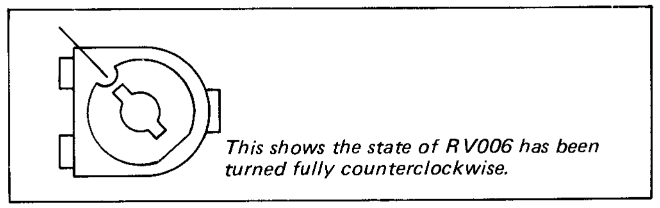
Mode	E-E
Signal	SECAM colour-bar
Measurement Point	1. Pin ⑭ of IC001 2. Pin ④ of CN002
Measurement Equipment	Digital voltmeter
Adjustment Element	RV006
Specified Value	12.0 ±0.5 V dc

[Connection]

Connect an adjustable resistor of 2.2 kΩ in parallel with LV002.

[Adjustment procedure]

1) Set the adjustable resistor of 2.2 kΩ to its maximum resistance value.
2) Confirm the DC voltage of pin ⑭ of IC001 is approx. 6.5 V dc.
3) Make the resistance value of the adjustable resistor of 2.2 kΩ gradually samll and stop it at the position when the DC voltage of pin ⑭ of IC001 becomes approx. 5 V dc after suddenly dropped.
4) Set RV006 to the position when it is turned fully to counterclockwise (↺).



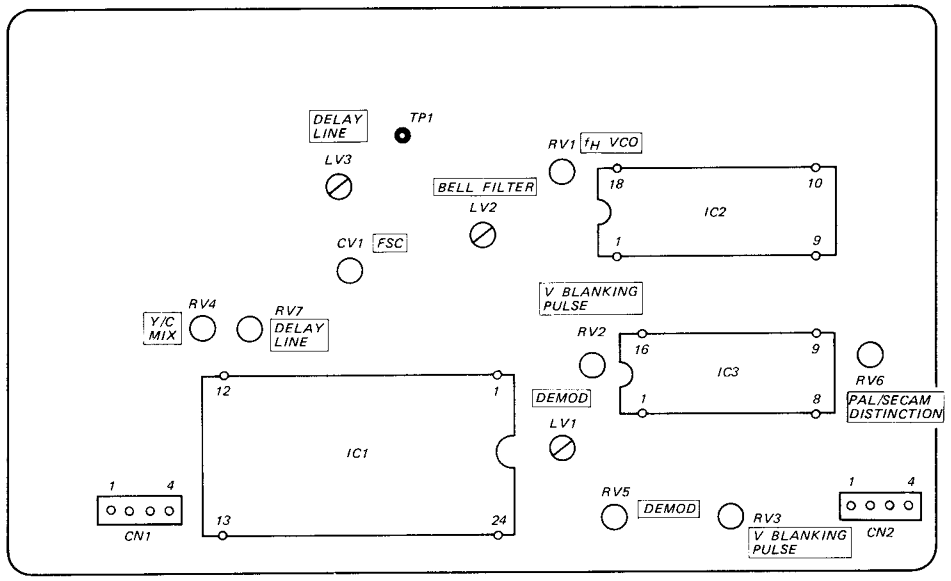
This shows the state of RV006 has been turned fully counterclockwise.

Fig. 7-9

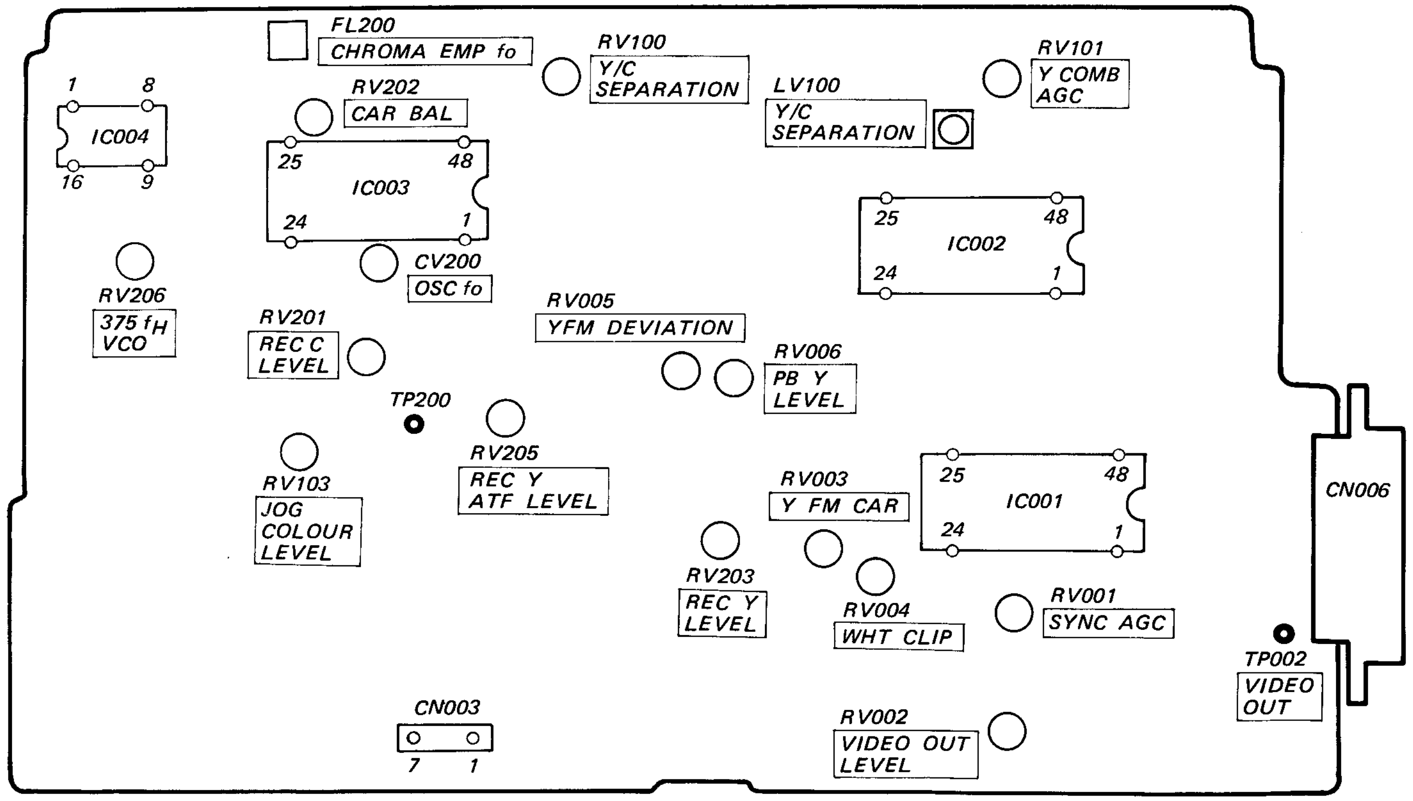
5) Connect a digital voltmeter to pin ④ of CN002 and confirm that the DC voltage is 0 V dc.
6) Turn RV006 gradually clockwise (↻) and stop it at the position when the DC voltage at pin ④ of CN002 becomes 12 ±0.5 V dc after suddenly increased.

PARTS LOCATION FOR ADJUSTMENTS

[TC-3 BOARD] – Component Side –


DELAY LINE
TP1
LV3
BELL FILTER
LV2
RV1
fH VCO
18
10
IC2
1
9
CV1
FSC
V BLANKING PULSE
RV2
16
9
IC3
1
8
RV6
PAL/SECAM DISTINCTION
RV4
Y/C MIX
RV7
DELAY LINE
12
1
IC1
13
24
DEMOD
LV1
1
4
CN1
RV5
DEMOD
RV3
V BLANKING PULSE
1
4
CN2

[VI-33 BOARD] – Conductor Side –


FL200
CHROMA EMP fo
RV100
Y/C SEPARATION
RV101
Y COMB AGC
1
8
IC004
16
9
RV202
CAR BAL
LV100
Y/C SEPARATION
25
48
IC003
24
1
CV200
OSC fo
25
48
IC002
24
1
RV206
375 fH VCO
RV201
REC C LEVEL
RV005
YFM DEVIATION
RV006
PB Y LEVEL
TP200
RV205
REC Y ATF LEVEL
RV103
JOG COLOUR LEVEL
RV003
Y FM CAR
25
48
IC001
24
1
CN006
RV203
REC Y LEVEL
RV004
WHT CLIP
RV001
SYNC AGC
TP002
VIDEO OUT
CN003
7
1
RV002
VIDEO OUT LEVEL

Sony Corporation

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EV-A200
RMT-419

SONY®
SERVICE MANUAL

AEP Model
Australian Model
Hong Kong Model

February, 1987

SUPPLEMENT-1

Subject: E Model is available

- This supplement contains only the points which differ from EV-A200 AEP Model.
- File this supplement with the service manual.

MICROFILM

VIDEO

SPECIFICATIONS

System

Video recording system	Rotary two heads Helical scanning FM system
Audio recording system	Rotary head, FM system
Video signal	CCIR system B, G, and H PAL colour
Usable cassettes	8 mm video format cassettes
Tape speed	SP: approx. 20.051 mm/sec LP: approx. 10.058 mm/sec
Recording/playback time	SP: 90 min. LP: 180 min. (with Sony P5-90 cassette)
Fast forward/rewind time	Approx. 3 min. (with Sony P5-90)

Tuner section

Channel coverage	Indonesia TV VHF 1–11 CCIR TV VHF E2–12, UHF 21–69
Aerial	75-ohm asymmetrical aerial socket
RF output signal	UHF channels 30 to 39 (variable), 75 ohms, unbalanced

Inputs and outputs

Video input	EURO-AV: 21-pin (pin 20) 1 Vp-p, 75 ohms, unbalanced, sync negative
Video output	EURO-AV: 21-pin (pin 19) 1 Vp-p, 75 ohms, unbalanced, sync negative
Audio input	EURO-AV: 21-pin (pin 2 and 6) More than 10 kilohms, –6 dBs (0 dBs = 0.775 Vrms)
Audio output	EURO-AV Output impedance less than 1 kilohm, –6 dBs with 10 kilohms load, unbalanced

Timer

Clock	Crystal clock
Time indication	24-hour cycle
Timer setting	Only for recording 6 events can be set for all 7 days of the week, for any day within 7 days, or for the same day every week
Memory backup	Approx. 3 sec.

General

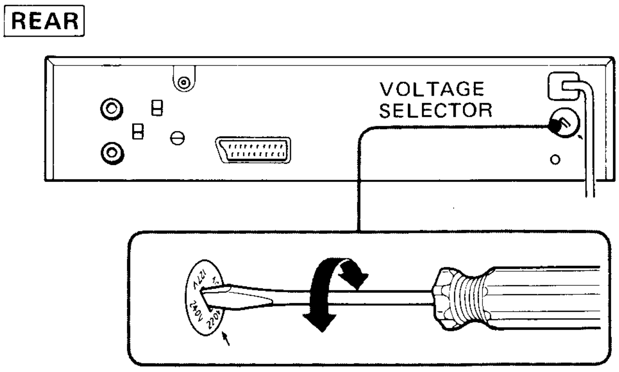
Power requirements	110/127/220/240 V ac, selectable 50/60 Hz
Power consumption	23 W
Operating temperature	5°C to 40°C (41°F to 104°F)
Storage temperature	–20°C to 60°C (–4°F to 140°F)
Dimensions	Approx. 355 × 85 × 353 mm (w/h/d) (14 × 3¼ × 14 inches) incl. projecting parts and controls
Weight	Approx. 6 kg (13 lbs 4 oz)

Accessories supplied

Remote Commander RMT-419 with 2 size AA batteries (1)
75-ohm coaxial cable (1)
Connecting cable VMC-2104MS (21-pin connector to 4 phono plugs) (1)
Screwdriver (1)
Demonstration tape (1)

ADJUSTING THE OPERATING VOLTAGE

This unit can be operated on 4 different voltages: 110, 127, 220 and 240 V ac.
Before connecting the unit to a mains outlet, check to see if the voltage selector on the rear of the unit is adjusted to the operating voltage of your area. If the selector needs to be reset, turn the selector with a screwdriver so that the arrow points to the appropriate voltage.



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1. DIFFERENCE PARTS LIST

1-1. MECHANICAL PARTS

No.	Description Model	EV-A200 (AEP)	EV-A200 (E)	Pages on EV-A200 SERVICE MANUAL
56	TA-29 BOARD, COMPLETE	*A-7060-457-A	*A-7060-548-A	100
57	TUNER, ET (BT-883AD) (TU001)	⚠1-463-577-31	———	100
57	TUNER, ET (BT-881AD) (TU001)	———	⚠1-463-584-21	–
60	PS-127 BOARD	*1-619-885-11	———	100
60	PS-131 BOARD	———	*1-619-881-11	–
61	PS-126 BOARD	*1-619-884-11	———	100
61	PS-130 BOARD	———	*1-619-880-11	–
63	TRANSFORMER, POWER (T101)	⚠1-448-647-11	⚠1-448-644-11	100
64	PS-124 BOARD	*1-619-882-11	———	–
64	PS-128 BOARD	———	*1-619-878-11	–
65	PS-125 BOARD	*1-619-883-11	———	100
65	PS-129 BOARD	———	*1-619-879-11	–
66	FRAME, REAR	*3-711-944-01	*3-711-944-11	100
68	CORD, POWER	⚠1-534-817-31	⚠1-534-817-XX	100
77	FT-17 BOARD, COMPLETE	*A-7060-455-A	*A-7060-549-A	100
87	BREAKER, CIRCUIT	———	⚠1-532-535-41	–
88	SWITCH, VOLTAGE SELECTOR	———	⚠1-552-304-00	–
	ACCESSORIES & PACKING MATERIALS			
	CABLE, VIDEO MONITOR	———	1-557-848-21	–
	MANUAL, INSTRUCTION (FRENCH, GERMAN, DUTCH)	3-765-601-41	———	124
	(SPANISH, SWEDISH, ITALIAN)	3-765-601-51	———	124
	(ENGLISH, FRENCH, SPANISH)	———	3-765-601-61	–

NOTE:

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

1-2. ELECTRICAL PARTS

Model Description	EV-A200 (AEP)	EV-A200 (E)	Page on EV-A200 SERVICE MANUAL		
			PRINTED WIRING BOARD	SCHEMATIC DIAGRAM	ELECTRICAL PARTS LIST
TA-29 BOARD, COMPLETE	*A-7060-457-A	*A-7060-548-A	83 – 84	85 – 87	114 – 117
C900 (CERAMIC)	————	1-101-004-00 0.01μF	–	–	–
TU001 (TUNER, ET)	⚠1-463-577-31 (BT-883AD)	⚠1-463-584-21 (BT-881AD)	83	85	117
R213 (CARBON)	————	1-249-417-11 1k	–	–	–
PS-124 BOARD	*1-619-882-11	————	90	93	121 – 122
PS-128 BOARD	————	*1-619-878-11	–	–	–
PS-125 BOARD	*1-619-883-11	————	90	94	122
PS-129 BOARD	————	*1-619-879-11	–	–	–
PS-126 BOARD	*1-619-884-11	————	90	93	122
PS-130 BOARD	————	*1-619-880-11	–	–	–
PS-127 BOARD	*1-619-885-11	————	91	93	122
PS-131 BOARD	————	*1-619-881-11	–	–	–
FT-17 BOARD, COMPLETE	*A-7060-455-A	*A-7060-549-A	91 – 92	94 – 96	123
D003 (DIODE)	8-719-911-19 1SS119	————	92	95	123
D004 (DIODE)	8-719-911-19 1SS119	————	92	95	123
IC001 (IC)	8-752-800-85 CXP5016H-153Q	8-752-801-54 CXP5016H-187Q	91	95	123
R029 (CARBON)	1-249-437-11 47k	————	92	95	123
R035 (CARBON)	1-249-437-11 47k	————	91	95	123
R036 (CARBON)	1-249-437-11 47k	————	91	95	123

NOTE:

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

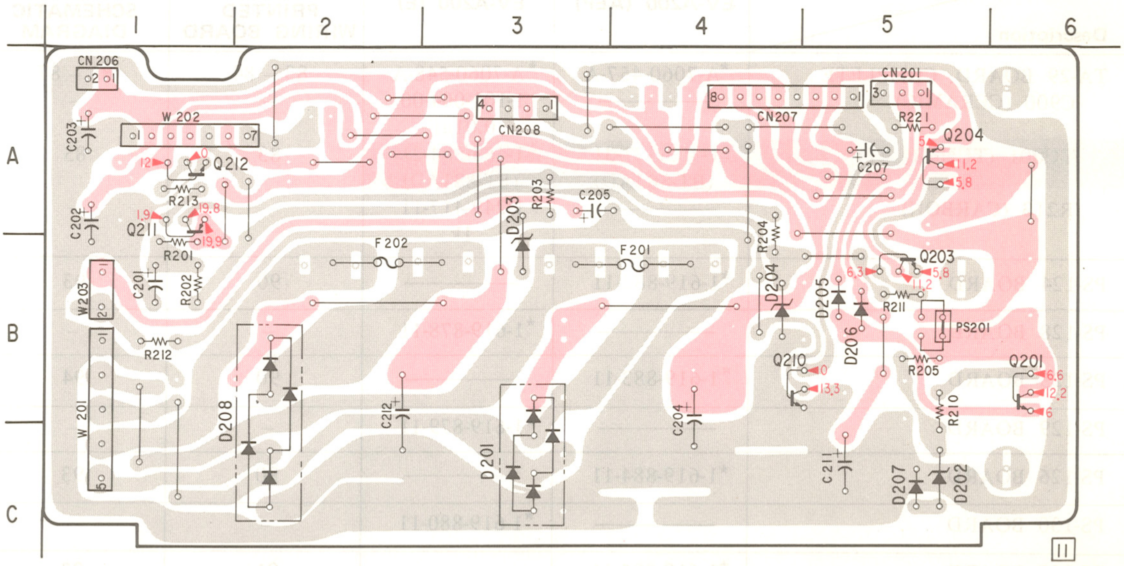
When indicating parts by reference number, please include the board name.

2. PS-128 (POWER), PS-129 (RECT), PS-130 (REGULATOR), PS-131 (REGULATOR) PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAM

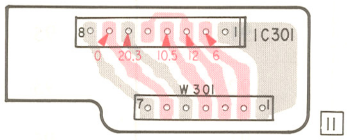
– Ref. No. PS-128 BOARD: 8,000 series, PS-129 BOARD: 8,000 series, PS-130 BOARD: 8,000 series, PS-131 BOARD: 8,000 series –

D201	C-3
D202	C-5
D203	B-3
D204	B-4
D205	B-5
D206	B-5
D207	C-5
D208	B-2
Q201	B-6
Q203	B-5
Q204	A-5
Q210	B-5
Q211	A-1
Q212	A-1

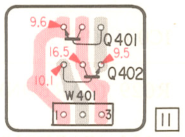
【PS–129 BOARD】


1
2
3
4
5
6
A
B
C
CN206
W202
CN208
CN207
CN201
R221
Q204
C203
Q212
R213
C207
11.2
5.8
C202
Q211
1.9
19.8
19.9
R201
C205
R203
D203
F202
F201
R204
Q203
6.3
5.8
11.2
W203
C201
R202
D204
D205
R211
PS201
R212
D206
W201
D208
C212
Q210
10
13.3
R205
Q201
6.6
12.2
6
R210
C204
D201
C211
D207
D202
II

【PS – 130 BOARD】


IC301
0
20.3
10.5
12
6
W301
II

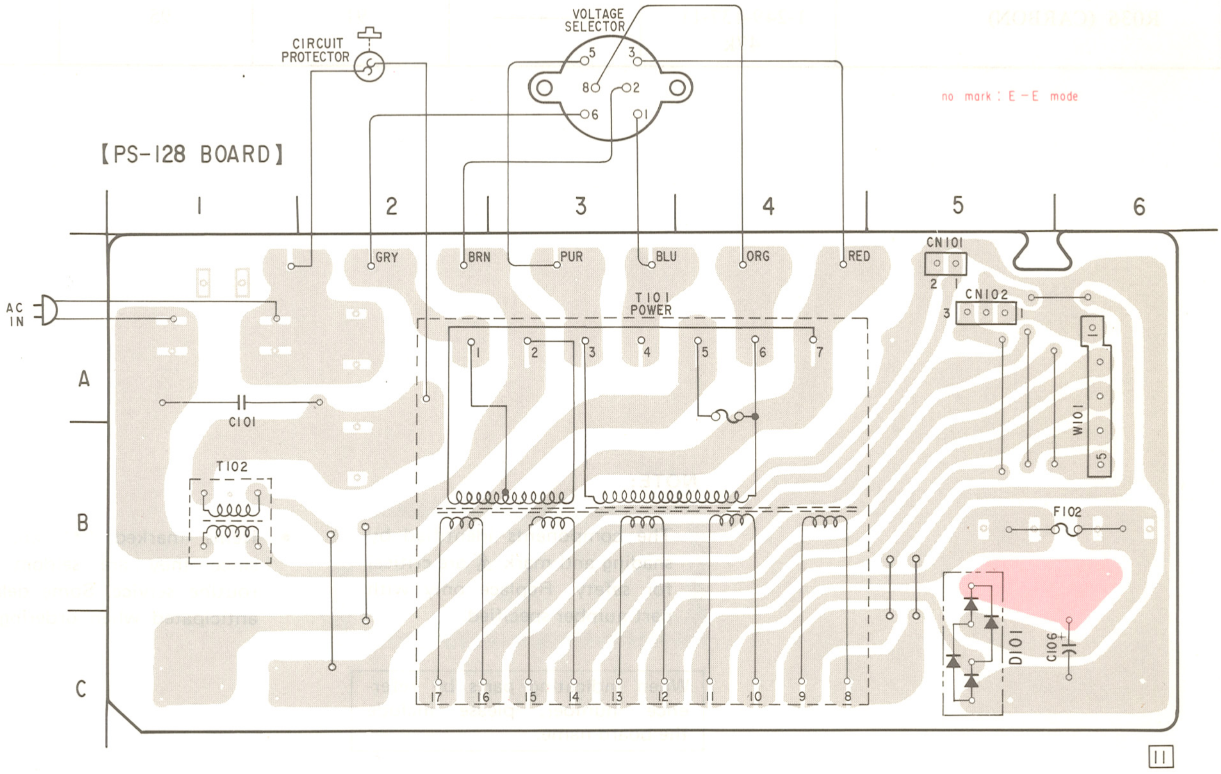
【PS – 131 BOARD】

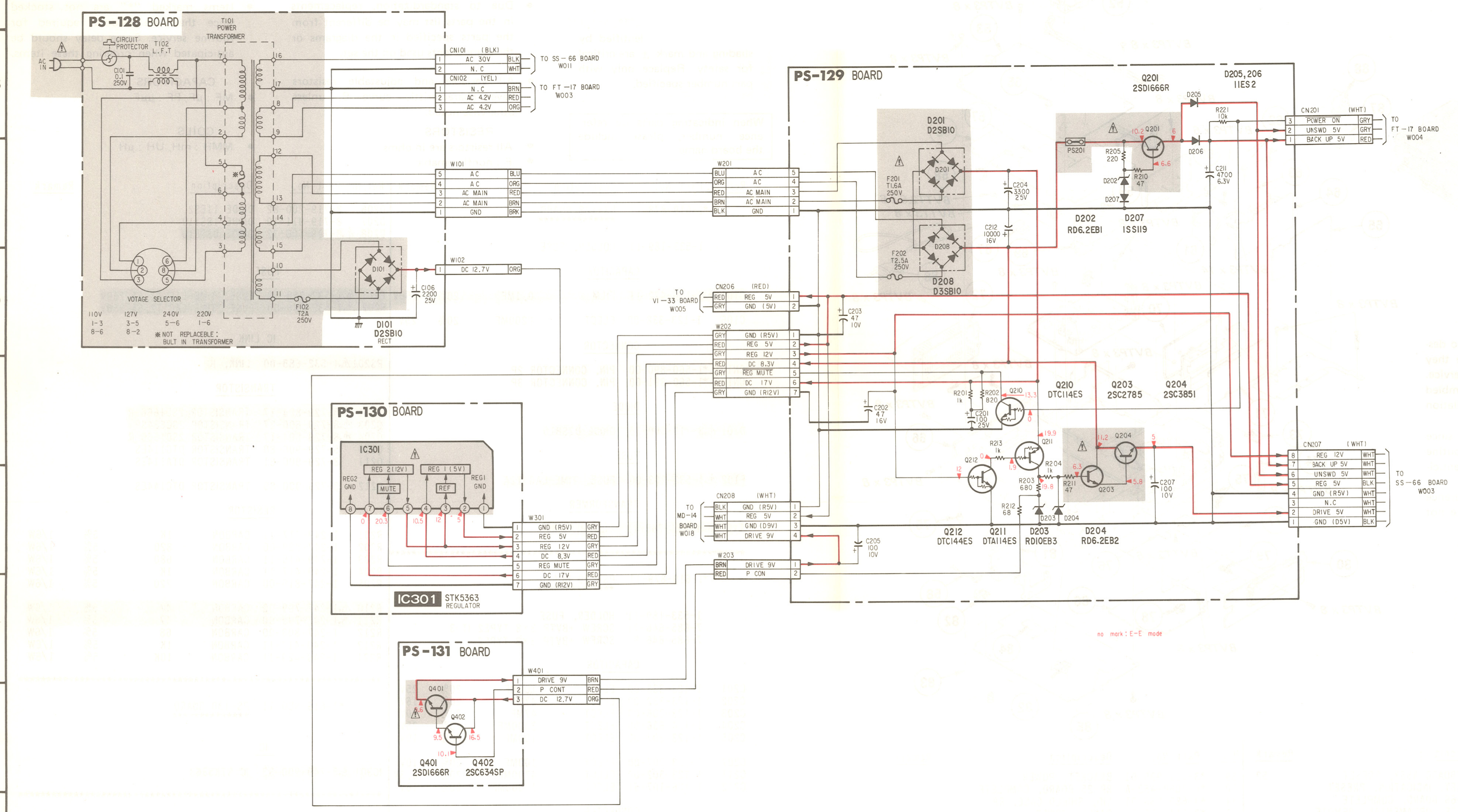

9.6
Q401
16.5
9.5
Q402
10.1
W401
II

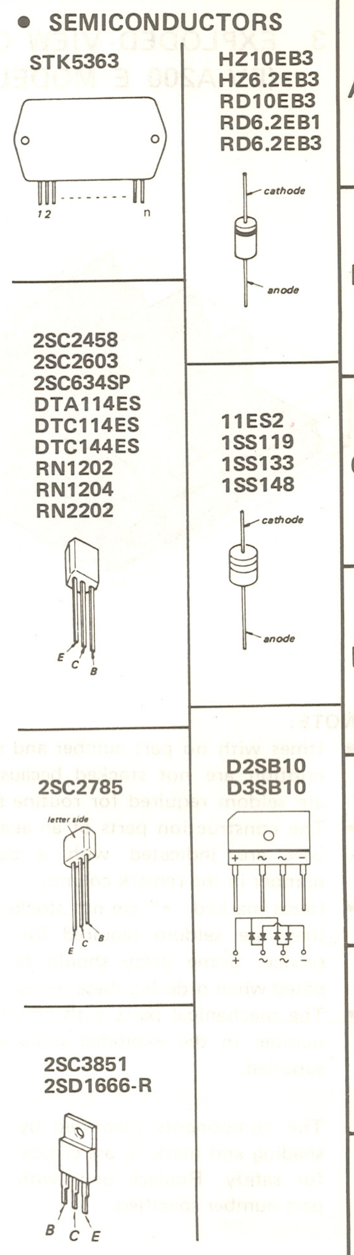
no mark : E–E mode

【PS–128 BOARD】

D101	C-5

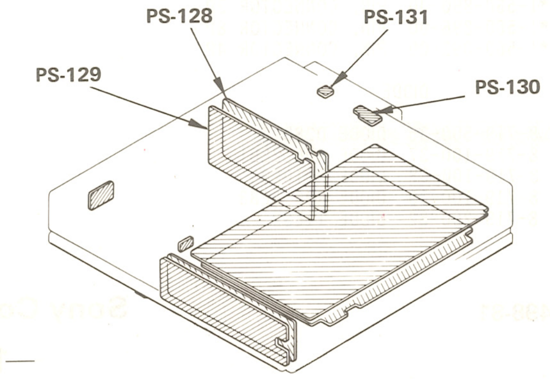

VOLTAGE SELECTOR
CIRCUIT PROTECTOR
1
2
3
4
5
6
A
B
C
GRY
BRN
PUR
BLU
ORG
RED
CN101
CN102
AC IN
T101 POWER
W101
C101
T102
F102
D101
C106
II


PS-128 BOARD
T101 POWER TRANSFORMER
CIRCUIT PROTECTOR
T102 L.F.T
AC IN
C101 0.1 250V
VOTAGE SELECTOR
110V 1-3 8-6
127V 3-5 8-2
240V 5-6
220V 1-6
※NOT REPLACEBLE: BUILT IN TRANSFORMER
F102 T2A 250V
D101 D2SB10 RECT
C106 2200 25V
CN101 (BLK)
AC 30V
N.C
TO SS-66 BOARD W011
CN102 (YEL)
N.C
AC 4.2V
AC 4.2V
TO FT-17 BOARD W003
W101
AC
AC
AC MAIN
AC MAIN
GND
W102
DC 12.7V
PS-129 BOARD
W201
D201 D2SB10
F201 T1.6A 250V
F202 T2.5A 250V
D208 D3SB10
C204 3300 25V
C212 10000 16V
Q201 2SD1666R
PS201
R205 220
R210 47
D202
D207
D202 RD6.2EB1
D207 1SS119
D205,206 11ES2
R221 10k
D206
C211 4700 6.3V
CN201 (WHT)
POWER ON
UNSWD 5V
BACK UP 5V
TO FT-17 BOARD W004
CN206 (RED)
REG 5V
GND (5V)
TO VI-33 BOARD W005
C203 47 10V
W202
GND (R5V)
REG 5V
REG 12V
DC 8.3V
REG MUTE
DC 17V
GND (R12V)
C202 47 16V
R201 1k
R202 820
C201 100 25V
Q210 DTC114ES
Q203 2SC2785
Q204 2SC3851
R213 1k
Q212
Q211
R204 1k
R203 680
R211 47
R212 68
Q203
C207 100 10V
Q212 DTC144ES
Q211 DTA114ES
D203 RD10EB3
D204 RD6.2EB2
CN207 (WHT)
REG 12V
BACK UP 5V
UNSWD 5V
REG 5V
GND (R5V)
N.C
DRIVE 5V
GND (D5V)
TO SS-66 BOARD W003
CN208 (WHT)
GND (R5V)
REG 5V
GND (D9V)
DRIVE 9V
TO MD-14 BOARD W018
C205 100 10V
W203
DRIVE 9V
P CON
PS-130 BOARD
IC301
REG 2 (12V)
REG 1 (5V)
MUTE
REF
REG2 GND
REG1 GND
W301
IC301 STK5363 REGULATOR
PS-131 BOARD
Q401
Q402
Q401 2SD1666R
Q402 2SC634SP
W401
DRIVE 9V
P CONT
DC 12.7V
no mark: E-E mode


● SEMICONDUCTORS
STK5363
HZ10EB3
HZ6.2EB3
RD10EB3
RD6.2EB1
RD6.2EB3
cathode
anode
2SC2458
2SC2603
2SC634SP
DTA114ES
DTC114ES
DTC144ES
RN1202
RN1204
RN2202
E C B
11ES2
1SS119
1SS133
1SS148
cathode
anode
2SC2785
letter side
E C B
D2SB10
D3SB10
2SC3851
2SD1666-R
B C E

Note on Printed Wiring Board:

- ○— : indicates a lead wire mounted on the component side.
- ●— : indicates a lead wire mounted on the printed side.
- ▨ : soldering side.
- ▨ : B+ Pattern.


PS-128
PS-131
PS-129
PS-130

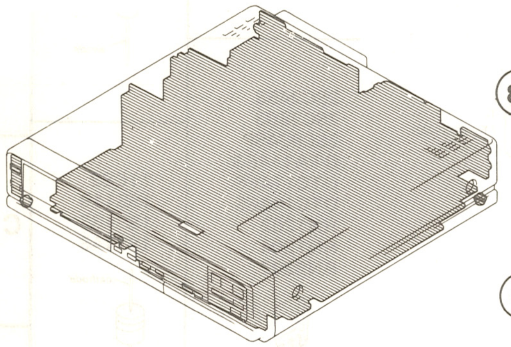
Note on Schematic Diagram:

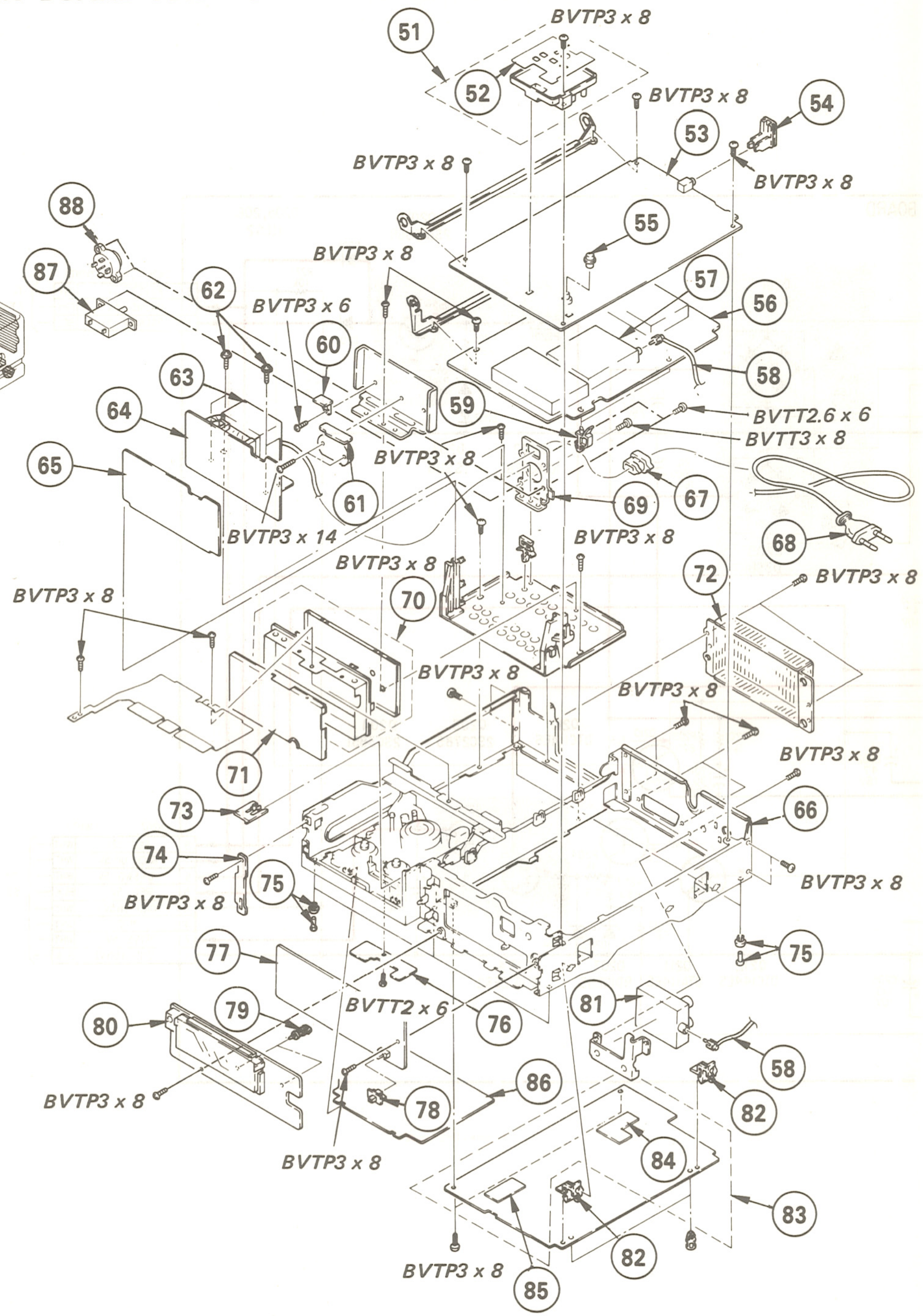
- All resistors are in ohms, 1/6W unless otherwise noted. kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics. and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ▬▬ : B + bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a color-bar signal input.
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltage variations may be noted due to normal production tolerances.
  - no mark: E-E mode

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

3. EXPLODED VIEW OF MAIN BOARD AND POWER ASSEMBLIES (EV-A200 E MODEL)





NOTE:

- Itmes with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

No.	Part No.	Description	Remark
51	X-3711-907-1	KEYBOARD ASSY, PRESET	52
52	3-691-947-11	SHEET, INDICATION, PRESET	
53	*A-7060-458-A	SS-66 BOARD, COMPLETE	
54	3-691-912-01	PLATE, ORNAMENTAL, REMOTE	
55	3-691-971-01	KNOB, SHARPNESS	
56	*A-7060-548-A	TA-29 BOARD, COMPLETE	
57	⚠.1-463-584-21	TUNER, ET (BT-881AD) (TU001)	
58	*1-555-110-00	CABLE, PIN	
59	*3-682-047-01	HOLDER (A), PC BOARD	
60	*1-619-881-11	PS-131 BOARD	
61	*1-619-880-11	PS-130 BOARD	
62	3-694-228-01	RCREW (3×6), TAPPING	
63	⚠.1-448-644-11	TRANSFORMER, POWER (T101)	
64	*1-619-878-11	PS-128 BOARD	
65	*1-619-879-11	PS-129 BOARD	
66	*3-711-944-11	FRAME, REAR	
67	⚠.3-703-244-00	BUSHING (2104), CORD	
68	⚠.1-534-817-XX	CORD, POWER	

No.	Part No.	Description	Remark
69	*3-711-995-01	BRACKET, POWER	
70	*A-7060-452-A	RP-25 BOARD, COMPLETE	
71	*3-689-066-01	LID, SHIELD CASE, RP	
72	*3-711-936-01	PANEL, POWER	
73	*3-691-916-01	COVER, CAP	
74	*1-620-041-11	PW-29 BOARD	
75	3-697-937-01	LEG	
76	*1-620-043-11	RS-22 BOARD	
77	*A-7060-549-A	FT-17 BOARD, COMPLETE	
78	3-711-965-01	KNOB, SELECTION	
79	*3-682-419-11	HOLDER, P.C.B	
80	*A-7060-454-A	FT-16 BOARD, COMPLETE	
81	⚠.1-464-690-1	MODULATOR, RF (RFU-857)	
82	*3-682-613-00	CLIP (C), ANCHOR	
83	*A-7060-746-A	VI-33 BOARD, COMPLETE	84, 85
84	*1-620-394-11	SK-17 BOARD	
85	*1-620-395-11	NC-6 BOARD	
86	*A-7060-453-A	MD-14 BOARD, COMPLETE	
87	⚠.1-532-535-41	BREAKER, CIRCUIT	
88	⚠.1-552-304-00	SWITCH, VOLTAGE SELECTOR	

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4. ELECTRICAL PARTS LIST OF POWER BLOCK

NOTE:

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

RESISTORS

- All resistors are in ohms
- F : nonflammable

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

CAPACITORS

- MF : μF, PF : μμF

COILS

- MMH : mH, UH : μH

Ref.No.	Part No.	Description				Remark
	*1-619-878-11	PS-128 BOARD ***************				
	1-533-189-11	HOLDER, FUSE				
		CAPACITOR				
C101	⚠.1-136-472-11	FILM	0.1MF	20%	250V	
C106	1-123-338-00	ELECT	2200MF	20%	25V	
		CONNECTOR				
CN101	*1-560-890-00	PIN, CONNECTOR 2P				
CN102	*1-560-891-00	PIN, CONNECTOR 3P				
		DIODE				
D101	⚠.8-719-500-35	DIODE D2SB10				
		FUSE				
F102	⚠.1-532-203-00	FUSE, TIME-LAG T2A				
		TRANSFORMER				
T102	⚠.1-421-765-11	FILTER, LINE				
**********						
	*1-619-879-11	PS-129 BOARD ***************				
	1-533-189-11	HOLDER, FUSE				
	7-685-646-71	SCREW +BVTP 3×8 TYPE2 IT-3				
	7-685-646-81	SCREW +BVTP 3×8 TYPE2				
		CAPACITOR				
C201	1-123-333-00	ELECT	100MF	20%	25V	
C202	1-123-332-00	ELECT	47MF	20%	16V	
C203	1-123-306-00	ELECT	47MF	20%	10V	
C204	1-124-636-00	ELECT	3300MF	20%	25V	
C205	1-123-307-00	ELECT	100MF	20%	10V	
C207	1-123-307-00	ELECT	100MF	20%	10V	
C211	1-123-302-00	ELECT	4700MF	20%	6.3V	
C212	1-126-107-51	ELECT	10000MF	20%	16V	
		CONNECTOR				
CN201	*1-560-891-00	PIN, CONNECTOR 3P				
CN206	*1-560-890-00	PIN, CONNECTOR 2P				
CN207	*1-560-896-00	PIN, CONNECTOR 8P				
CN208	*1-560-892-00	PIN, CONNECTOR 4P				
		DIODE				
D201	⚠.8-719-500-35	DIODE D2SB10				
D202	8-719-100-37	DIODE RD6.2EB1				
D203	8-719-100-58	DIODE RD10EB3				
D204	8-719-100-39	DIODE RD6.2EB3				
D205	8-719-200-82	DIODE 11ES2				

Ref.No.	Part No.	Description				Remark
D206	8-719-200-82	DIODE 11ES2				
D207	8-719-911-19	DIODE 1SS119				
D208	⚠.8-719-500-32	DIODE D3SB10				
		FUSE				
F201	⚠.1-532-259-00	FUSE, TIME-LAG T1.6A 250V				
F202	⚠.1-532-286-00	FUSE, TIME-LAG T2.5A 250V				
		IC LINK				
PS201	⚠.1-532-685-00	LINK, IC				
		TRANSISTOR				
Q201	⚠.8-729-804-17	TRANSISTOR 2SD1666-R				
Q203	⚠.8-729-600-27	TRANSISTOR 2SC634SP				
Q204	⚠.8-729-804-17	TRANSISTOR 2SD1666-R				
Q210	5-729-900-80	TRANSISTOR DTC114ES				
Q211	8-729-900-61	TRANSISTOR DTA114ES				
Q212	8-729-900-89	TRANSISTOR DTC144ES				
		RESISTOR				
R201	1-249-417-11	CARBON	1K	5%	1/6W	
R202	1-247-829-00	CARBON	820	5%	1/6W	
R203	1-249-415-11	CARBON	680	5%	1/6W	
R204	1-249-417-11	CARBON	1K	5%	1/6W	
R205	1-247-815-00	CARBON	220	5%	1/6W	
R210	⚠.1-247-799-00	CARBON	47	5%	1/6W	
R211	⚠.1-247-799-00	CARBON	47	5%	1/6W	
R212	1-247-803-00	CARBON	68	5%	1/6W	
R213	1-249-417-11	CARBON	1K	5%	1/6W	
R221	1-249-429-11	CARBON	10K	5%	1/6W	
**********						
	*1-619-880-11	PS-130 BOARD ***************				
		IC				
IC301	⚠.8-749-900-33	IC STK5363				
**********						
	*1-619-881-11	PS-131 BOARD ***************				
		TRANSISTOR				
Q401	⚠.8-729-804-17	TRANSISTOR 2SD1666-R				
Q402	8-729-600-27	TRANSISTOR 2SC634SP				

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